

THE NORTH DAKOTA FARMER



"THE NORTH DAKOTA FARMER FOR NORTH DAKOTA FARMERS"

Alex Alin

517

Vol. 17, No. 6 Lisbon, North Dakota, December 15, 1915 50 Cents A Year



THE THREE GRANLUND CORN GROWERS

In center, Walter Granlund whose yield was 90 bu. At the left, Arthur Granlund whose yield was $83\frac{1}{6}$ bu. At the right, Henry Granlund whose yield was $75\frac{1}{2}$ bu. Walter won the 1914 contest with a yield of $98\frac{1}{6}$ bu. Henry won the 1913 contest with a yield of $106\frac{3}{4}$ bu.

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Where the Wind Does the Work

PAUL LINDEMAN
ENDERLIN, N. D.

Nov. 10, 1915

Wind Electric Co., Inc.,
Wyndmere, N. D.

Gentlemen:

This is about the 20th time I have been requested to recommend the "Wind Electric" Light and Power Plant which you installed on my farm over a year ago but I never tire of recommending an article which gives me so much satisfaction and pleasure as does the plant which you sold me.

My plant gives me light for my entire house, barn, sheds and a large light in my yard. It does our churning, washes our clothes and irons them, elevates my grain, cleans my grain, separates the cream and other things which are of great assistance to me.

Outside of the first cost of my plant, I have paid less than two dollars for all the electricity I have used.

Sincerely yours,

PAUL LINDEMAN.

OUR ABSOLUTE GUARANTEE OF SATISFACTION

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WIND ELECTRIC COMPANY, Inc.

"WIND ELECTRIC"

MEANS

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General Satisfaction

MANUFACTURERS "WIND ELECTRIC"

Light and Power Plants
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MOTORS GENERATORS STORAGE BATTERIES

\$5.00

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"WIND ELECTRIC"

MEANS

ECONOMY, SERVICE, GENERAL SATISFACTION

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TOM BOWMAN, General Superintendent

WIND ELECTRIC COMPANY, Inc.

WYNDMERE - - - NORTH DAKOTA

THE NORTH DAKOTA FARMER

Vol. 17, No. 6

LISBON N. D., DECEMBER 15, 1915

50 Cents a Year

The National Conference on Marketing and Farm Credits

By J. H. Worst, President N. D. A. C.

THE third annual conference on marketing and farm credits was held in the Sherman Hotel, Chicago, November 29, 30, and December 1 and 2. The convention was representative in character, being made up of delegations from forty-six states and Canada. Men of national and international reputation, such as David Lubin, United States Delegate to the International Institute of Agriculture, Rome, Italy; Carl Schurz Vrooman, Assistant Secretary of Agriculture, Washington, D. C.; Myron T. Herrick, former Ambassador of the United States to France; and a score of other speakers, who if not quite so well-known, were equally earnest in their advocacy of better market facilities for the distribution of farm products and for more favorable interest rates on money required by American husbandmen for the improvement of their holdings.

It would be impossible to give the readers of the North Dakota Farmer more than a brief synopsis of the things said and of the measures advocated.

President Frank L. McVey of our own state university was the presiding officer, and his opening address contained a masterful presentation of the questions at issue and some of the unsolved problems that confront the country. But few of the speakers, however, were actual farmers. In fact the number of bona fide farmers was smaller than might have been expected in view of the issues that were under consideration. Another noticeable incident was the exceedingly limited space given to the proceedings of the conference by the Chicago newspapers in view of the national character of the convention and the serious matters that were discussed.

The keynote of the conference was co-operation among farmers and the necessity for farmers to solve this problem for themselves. It was quite generally conceded that no nation can permanently prosper that subordinates its producers to its distributors; and

that the city has developed at the expense of the country.

The soaking of homeseekers in various ways, such as misrepresenting conditions by real estate brokers and exorbitant rates of interest charged by loan agents also received due and caustic consideration. It was contended that the northwestern states could go a long way toward solving the tenant question by invoking government or state aid, such as would free the needy farmer from the grasp of money sharks, and at the same time assist those who desire to own land not only to obtain it on favorable terms, but also to provide means for educating them so they may not become agricultural misfits. In this way the land would more generally be owned by those who cultivate it, and the country in less danger from the curse of tenantry.

It was pointed out that of approximately 6,360,000 farmers in the United States only about 4,000,000 own their farms, many of these heavily mortgaged. This leaves about two and one-third million of renters and farm laborers with the number of farm owners decreasing and the number of renters increasing every decade at an alarming rate.

David Lubin emphasized especially the importance of encouraging the ownership of land by means of cheap money on long-time loans as a national necessity—for national protection. The agrarian interests being naturally conservative and urban interests radical, national decay is bound to result if an equilibrium is not maintained between city and rural development and their respective social and political influence. The past history of nations that erstwhile flourished and then perished are all in evidence. This adjustment cannot be made and maintained without government or state aid, since the conservative element, which is the strength of the nation, will fall a prey to the more alert and grasping progressive element.

Mr. Lubin in substance maintained

that the German government, with greater foresight, forestalled the tendency of the nation to "turn turtle" by permitting the shrewdness, and I might say, the dishonesty or sharp practices of urban commercialism, to discredit and undermine the inherent strength of the more defenseless conservatism, by establishing such institutions as the Landschaft and the Landwirtschaftsrat, the former for the purpose of providing cheap money for her husbandmen, and the latter for the equitable distribution of farm products. In other words, they made co-operation among farmers so real that their own institutions protect them and render them independent and free from exploitation. Germany being an autocratic government, did not have to wait until dire necessity created public opinion strong enough to overcome political intrigue, and then approach a remedy in the face of every obstacle that selfish interests could interpose.

Only, therefore, by co-operation can farmers hope to secure money at a low rate of interest for improvement purposes and obtain a fair price for agricultural products. They must manage their own business, employing in the meantime such services as may be needed, and on such terms as may be fair and equitable. Otherwise, their servants will fix their own compensation and monopolize the profits of the farming business. This is the condition that confronts the farmer today.

The general sentiment that pervaded the conference was favorable to the emancipation of the farming business, but without interfering with other legitimate business interests.

Unquestionably it was a profitable meeting of earnest and far-seeing men, and tho many were not farmers, yet they had the welfare of the country at heart, and the significance of what a more independent and co-operative spirit awakened among farmers would mean for them and for all other national interests.

Resolutions creating a central committee to organize the farmers of America into co-operative societies covering every farm product, from poultry and garden truck to grain and livestock, and operating in every county in each of the forty-eight states, were unanimously adopted at the closing session of the National Conference on Marketing and Farm Credits.

The purposes of the agricultural organization society to be formed are defined in the resolutions adopted as follows:

"To examine into the methods of production and distribution of farm products with a view of evolving a system of greater economy and efficiency in handling and marketing the same.

"To encourage and promote the co-operative organization of farmers and those engaged in allied industries for mutual help in the distribution, storing and marketing of produce.

"To furnish instructors and lecturers upon the subject of co-operation among farmers, auditing and accounting experts and legal advice on matters relating to organization.

"To issue reports, pamphlets and instructions which will help in spreading knowledge of the best means of rural betterment and organization.

"To encourage and co-operate with government departments, educational institutions, societies, educational centers, etc., in all efforts to solve the questions of rural life, rural betterment and agricultural finance and the marketing and distribution of produce."

"To investigate the land conditions and land tenure with a view to working out better, more equitable and fairer systems of dealing with this problem so vital to the social and the economic well-being of the country.

"To call from time to time such conferences or conventions as will help to carry out the above mentioned objects."

The resolutions also provide for the permanent organization of the national conference on marketing and farm credits and the making of this conference an annual event for the purpose of discussion of the problems that surround the production, distribution and financing of the American farm and American farm products.

haps other fungous diseases of which we know not.

Diseases of Cereals: The cereal crops are affected by a number of fungous diseases for which there are well known remedies. As for example, stinking smut of wheat, and loose smut of oats, barley, and millet, and wilt of flax. The diseases just mentioned are of such definite character that it is possible to make a clean-cut fight against them. There are yet many other fungous diseases of these same crops and similar crops which are more difficult to control, and the farmer needs to consider regular sanitary methods such as are necessary in animal disease. There are none of these diseases of cereal crops which are not largely affected by weather and soil conditions, and numerous other features, some of which are within the control of the crop producer. All of the diseases mentioned, and many others of destructive nature are caused by minute plants growing upon, or in the bodies of the plants, which constitute the farm crops. The affects which they produce we speak of as disease. The real cause of the disease being the fungi, parasitic plants. Each kind of disease is caused by a definite kind of fungous parasite. You will understand what I mean by fungus when I say that the common mushroom or toadstool which one is able to see above the ground, is one of the fruiting structure of a real fungous body which is made up of countless thousands of minute white branching threads, spoken of by the mushroom grower as span, which pervade the soil in all directions immediately below the place where the mushroom comes up. These threads or filaments develop in different places in the ground because minute seed-like bodies or dust particles which can germinate are cut off from the umbrella shaped tube of the fruiting body and are blown by the wind. These are too small to be observed individually by the naked eye. The fungi which produce rust of wheat, and smut of potatoes, wilt of flax, etc., all have similar minute spores (seed bodies) which are formed in countless numbers, and are blown by the wind, carried by water, and distributed as dust on the seed and foliage of the cereal grains, etc. If it were not for these the characteristic diseases would not occur, regardless of weather conditions; but spores need dew, air, and moisture, or soil moisture, as the case may be, to germinate as seeds of corn or wheat do. They also need a certain degree of heat, etc. This accounts for certain of these diseases being more destructive under some

Enemies to Farm Crops

How to Control Them

By Prof. H. L. Bolley, Pure Seed Commissioner, N. D. A. C

Fungous Enemies of Farm Crops: In North Dakota no crop suffers more fungous attacks than does the potato crop. It is easier to raise a good crop of potatoes in North Dakota than almost any other potato growing region that I have visited. However, most of our potato growers have not as yet made proper preparation to produce as large crops as their work and soil entitles them to. Most of them, as yet, only provide themselves with proper machinery to fight bugs, blight, and rot. The same type of spraying machines which will be suitable to destroy bugs will allow the potato grower to raise a crop practically free from its most destructive enemies, blight, and rot. Aside from blight and rot, the potato crop is also affected by disease known as scab, which is transmitted by means of the seed.

To prevent potato scab select good sound tubers, and then before cutting immerse them from one-half to one and one-half hour in solution for killing the scab fungus. Use either formaldehyde solution or corrosive sublimate solution. The formaldehyde formula demands 1 lb., 16 oz., of formaldehyde to 30 gals. of water.

The corrosive sublimate formula demands 8 oz. of powdered corrosive sublimate to each 50 gal. bbl. of water. The corrosive sublimate should be dissolved in a few gallons of hot water before being poured into the barrel of cold water. The corrosive sublimate should always be mixed in wooden vessels or tanks; that is, it should not be placed in metal vessels. It is a more effective substance for preventing potato disease than the formaldehyde; but it needs to be handled with a little more care so as to get results, and it is a little more poisonous. The potato tubers after drying should be cut and planted as usual. The seed tubers should be treated every year because one cannot see with the naked eye the minute spores of the fungi which produce the disease known as rot or scab. A proper rotation of crops should be maintained to prevent getting the soil full of potato diseases. If a farmer raises his own seed tubers, and is careful to keep them clean for a number of years it is possible that he can dispense with the seed treatment for a few years, tho it is my observation that it always pays for itself. There are per-

kinds of weather and soil conditions than under some others.

As each kind of disease has to be produced by a different kind of fungus and this fungus lives under different conditions and starts its growth under a particular kind of condition the farmer must learn what these conditions are, and then reason how to attack the disease, or how to farm in order to best control it. The smuts of cereals in most part develop in the crop only by way of the seed grain, that is, disease starts always in the germinated seed, as for example, stinking smut of wheat, loose smut of oats, and the smuts of barley and millet. Knowing this fact, the farmer has only to guard against the sowing of smut-infested seed. This is the best known formula for insuring against smuts in these grains.

Formula for smut: Use 16 oz. of formaldehyde to each 40 or 45 gals. of water. Wet the seed grain in any manner you see fit, just so all of the seeds are known to be evenly moist with the solution over the entire surface. In the case of wheat the grain may be dried as quickly as possible and sown. In the case of barley, and oats it is wise to allow the grain to remain piled in a heap for a period, so that the fumes of formaldehyde may penetrate beneath the husks and scales. Usually it will take about three-fourths to one gal. of solution to each bu. of wheat, and two to two and one-half gals. of solution to each bu. of oats or barley to do the work properly. There are splendid dipping machines to carry on this work on a large scale, but any farmer can treat seed enough for seeding 160 to 300 acres if he has a good hand sprayer.

After the grain is well fanned and cleaned it should be thrown in a pile, sprayed with the sprayer and shoveled thoroly until evenly damp.

Loose Smut of Wheat, and Corn Smut: These are two destructive smuts that can only be controlled by sanitary methods. The smut of corn cannot be prevented by simply treating the seed corn. The smut spores that live in the masses of old corn stalks, etc., blow about with the wind during the following season, and if they fall upon succulent joints of a growing corn stalk it becomes infected and such a stalk is apt to produce a smutty ear, smutty tassels, or other smutty parts. This means that the ground that is cropped to corn continuously is apt to become badly infected by smut unless the farmer goes thru the field and cuts out the diseased stalks, carrying them away and burning them. The farmers should do this, for wind can blow these spores

for many miles, and it will do very little good for one, or a few, farmers to take this care. If all of the farmers in a large neighborhood do it their corn will be comparatively free from the disease in a few years. This is a point which should be mentioned in every Farmers' Institute.

The loose smut of wheat lives exactly the same way, and the formaldehyde treatment does not prevent its occurrence in the field. Many farmers, not knowing this fact, have condemned the formaldehyde treatment which was recommended for stinking smut. I believe that it would pay the farmers of North Dakota to make an organized fight on this loose smut by going thru the fields just at the time the wheat is well headed, and pulling the smut and bagging it to carry off to burn just as they have fought mustard in the past. Only an organized attempt will make headway. If some observing farmer would take it upon himself each year to call attention of his neighbors to the fact that the time had arrived to pull loose smut I believe that neighborhood would be delighted with the results of their work inside of three or four years.

Flax Wilt: The disease known as flax wilt is a root disease. The fungous parasite lives in the ground year after year, after being planted there. It attacks the roots of the young plants immediately as they go from the seed, and usually kills a large percentage of the plants, even before they get out of the ground. Other plants lie until the crop is matured at harvest time, when if the ground is badly diseased there will be found to be very little on it except the weeds, as the flax has died, as if by drouth or burning up. This disease, like the smuts, is not native to prairie lands. The spores of it are sown with the uncleaned seed of flax.

Farmers should be careful to select only plump flax seed, for many of the sick plants produce seed which is ripe enough to grow, but has the fungus inside of the seed coats. Hence treatment in such cases would not get at the fungus without killing the seed.

Formula for Flax Wilt: Select the brightest, plumpest, and yellowest flax seed. Clean it so as to blow out all dust, chaff, and flax straw as these also carry disease into the land. Then with a good hand sprayer, (a force pump is necessary for best work,) spray the seed while shoveling over, with the solution of formaldehyde. The solution to be used in the spray contains 16 oz. of formaldehyde to each 40 gals. of water. If the spraying is properly done the dry flax will

absorb approximately one-half gal. for each bu. of seed.

Breeding to dispose of Wilt: There are large areas of ground which have already become flax-sick because of this disease. We have learned here at the college that flax can be produced which is resistant to the action of this soil fungus. As yet only a small amount of such seed has been produced and placed in the hands of farmers but we have learned the method by which it may be had, which is the all-important thing. Any farmer can gradually obtain seed which is sufficiently resistant to live on his land. It is only necessary that he keep his own seed year after year, and clean it to such an extent as to remove the shriveled and lightweight seed. The sicker the ground he grows it on the better will be the quality of the seed which remains for growing on sick land. If the seed has never been grown on sick ground it will not be able to resist at all. Here at the college we have been able to develop flax of high resisting powers in from four to five years. To make the point clear, if a farmer has ground so flax-sick that only two or three plants live to maturity on that ground he should certainly save the seed on that ground if he wants to get a high grade of wilt resisting seed. And if he wants to make that more resistant he should sow that on the sickest ground he has the following years. We do not recommend continuous cropping to flax, except when trying to procure this wilt resistant flax; tho we have learned that flax is not so hard on soil as wheat and some other crops.

Controlling Rusts: Previous to the last few years there has been very little hope of controlling the rusts which attack the cereal grains. We have, however, been working very persistently on this problem at the North Dakota Experiment Station, and have been using methods not usually used to ascertain what can be done. For example we have, when we made trials of varieties for resistance, caused each variety to have every opportunity to rust by thoroly infecting all plants. Studies upon this phase of the question allow us to say that there is a great difference exhibited by the different varieties. Usually speakers say that Durum wheats are resistant to rusts. We find that this is largely true for some Durums, but others are very bad rusters. So it is with other types of grains, some resist quite materially, for instance our common White-Russian oats, and others only escape rust by being earlier maturers, as for example the 60-day oats. At present,

so far as gaining resistance is concerned about the only advice that we can give to farmers rests in the fact that some varieties are more resistant than others, and in the further fact that we have proved to our own satisfaction that if we discard the shriveled wheat every year, and especially do this in very rusty years, being sure to save plump wheat which happens to be developed in such a year for seed, that the farmer can produce a strain of each variety which is of much greater resistant power to rust than is now the case with common varieties. In other words, a farmer should raise his own seed wheat. And if there are years of bad rust attack he should save only the good plump stuff, using a fanning mill, and especially a vertical wind blast which will save only the heavy kernels. These kernels are heavy because their parents' plants could resist the rust, and they will breed more like themselves. It is not probable that we shall get absolutely rust resistance in this way, but we can greatly improve the resisting quality in standard varieties of wheat. Some farmers say that this cannot be done because "the wheat will run out when grown on the same land for many years." This has been disapproved. It has been clearly shown that home grown seed is always best if the grower will each year save only plump, heavy grain for seed purposes.

Flax Rust: Farmers have not usually paid much attention to flax rust. Some varieties rust so badly each year that the yield is largely destroyed. Our work shows that there is a great difference in the different strains of flax with regard to this rusting. Some rust hardly at all. Most flax seed, however, is badly mixed, and should be separated by selection. We have learned that this can be done so perfectly that a complete rust resistant flax can be obtained. Farmers are advised to keep this in mind, and having obtained a type of seed flax which does not show any rust, they should not discard that seed, but keep improving it each year by properly grading and cleaning it.

AWARDS IN CORN CONTEST

The winners in the Fourth Boys' Acre-Yield Corn Contest, conducted by the Extension Department of the North Dakota Experiment Station are being announced.

The first prize of \$75 for the southern section of the state goes to Walter Granlund of DeLamere on a yield of 90 bushels of mature corn on an acre. This also brings him the sweepstakes prize of \$50 for having

the highest yield in the contest. The second prize of \$50 was won by Arthur Granlund on a yield of 83½ bushels. The third prize of \$35 went to Henry Granlund on a yield of 75½ bushels. The fourth prize \$25 to Harper Brush, Lisbon with a yield of 72 bushels.

In the northern section the first prize \$75 was won by Clarence Knudson of Manvel, with a yield of 50½ bushels and the second prize \$50 by Oscar Lageson, Reynolds with a yield of 45½ bushels.

This contest was open to boys 10 to 18 years of age on condition that they would grow an acre of corn, doing all of the work themselves, except the plowing and preparation of the land, which they could have help in doing. They were to furnish their own seed. The Experiment Station sent the boys instruction in corn growing. These included the practices that the boys had found to be most successful in previous contests. The corn was weighed by county agents or other members of the Experiment Station

FOURTH ANNUAL BOYS' ACRE-YIELD CORN CONTEST

CONDUCTED BY THE EXTENSION DEPARTMENT NORTH DAKOTA EXPERIMENT STATION. 1915 PRIZE WINNERS

Prizes are awarded only upon the basis of mature corn produced on a measured acre. The state is divided into two sections, the southern being south of the northern boundary of township 148.

SOUTHERN SECTION						
Name	County	Post Office	Gross Yield	Yield Mature Corn	Prize	
1 *Walter Granlund	Ransom	DeLamere	99.9	90	\$75.	
2 Arthur Granlund	Ransom	DeLamere	91.2	83½	50.	
3 Henry Granlund	Ransom	DeLamere	88.7	75½	35.	
4 Harper Brush	Ransom	Lisbon	95.1	72	25.	
5 Norris Egge	Cass	Hickson	72.	70	15.	
6 Willie Eggers	Barnes	Page	56.9	55¾	10.	
7 Leonard Boom	Barnes	Litchville	55.	49	10.	
8 Thomas Boom	Barnes	Litchville	53.	47¼	10.	
9 Philip Hardina	Richland	Wahpeton	44.3	44½	10.	
10 Forrest Cowles	Dickey	Ellendale	44.	44	10.	
11 Ambrose Murphy	Dickey	Guelph	43.4	41½	10.	
12 Dewey Beaver	Dickey	Monango	47.7	39¾	10.	
13 Leonard Cowles	Dickey	Ellendale	44.8	35½	10.	
14 Frank Hardin	Dickey	Monango	34.6	34½	10.	
15 Lloyd T. Gordon	Dickey	Ludden	42.3	34½	10.	
16 Leonard Yuhl	Dickey	Ellendale	33.1	31¾	5.	
17 Lloyd Lockwood	Dickey	Ellendale	38.6	30½	5.	
18 Oliver Blazer	Dickey	Oakes	35.8	28¾	5.	
19 Erick Kreft	Morton	Lark	28.	26½	5.	
20 Robert Heine	Dickey	Ellendale	35.4	21½	5.	

NORTHERN SECTION						
1 Clarence Knudson	Grand Forks	Manvel	63.1	50½	\$75.	
2 Oscar Lageson	Grand Forks	Reynolds	56.7	45½	50.	
3 Eugene Daily	Walsh	Ardoch	38.4	38½	35.	
4 Clarence Ensich	Grand Forks	Manvel	19.	15½	25.	
5 Clayton Sims	Bottineau	Willow City	32.	8	15.	

*Sweepstakes prize of \$50. awarded to contestant securing highest yield in the contest.

The prizes will be distributed at the North Dakota State Corn Show, which will be held at Fargo, January 18th to 21st, 1916. The winners will have exhibits at the fair.

The 1914 contest was won by Walter Granlund on a yield of 98½ bushels. The 1913 contest by Henry Granlund on a yield of 106¾ bushels. The first contest conducted in 1912 was won by Harper Brush with a yield of 71½ bushels.

staff.

Moisture determinations were made and the weights per bushel based on dry matter. Only mature corn was considered in the yields. Walter put 12 loads of manure on his acre and plowed it 11 inches deep and planted the corn, May 17th. It was cultivated 6 times. He used Rustler's White Dent, a corn that his father has been selecting for seven years. The seed was secured at the North

Dakota State Corn Show where it was one of the prize winning exhibits.

Thru these contests the boys have set new records in corn growing in North Dakota and have demonstrated the possibilities in corn growing that but few if any had even believed. It has been demonstrated that one of the biggest factors if not the biggest one in producing big yields of mature corn is to use well selected home grown seed. Early planting, well prepared seed bed, fertility, and good cultivation are also important factors. \$700 was offered in prizes as an encouragement for the boys to put their best efforts into their corn growing.

A FORECAST OF THE RAW FUR MARKET FOR WINTER OF 1915-16.

By A. B. Shubert, Chicago

The purpose of our market forecast is to place before our friends dependable information from our point of view, based upon conditions as we find them and entirely free from personal sentiment.

The outlook for the sale of American raw furs is unquestionably good and we anticipate a very active market for all the articles on the list of American raw furs.

Skunk: The demand will be exceptionally good for the early collection, as stocks in the hands of the dealers and manufacturers are quite small, when compared with former years. The early collection will be wanted for immediate use. We advise prompt shipment of this article, as the market will, no doubt, be at its best in the early part of the season.

Muskrat: The market has been practically cleared of all the old stock. The better grades of Winter and Spring, suitable for manufacturing "Hudson Seal"—the best imitation of the seal ever discovered and for some reasons preferred by many to the seal—will be in excellent demand and will bring a much better price than in 1914.

Coyote and Wolf: The demand for coyote and wolf will unquestionably be good this season. It is the only article that can be used as a good imitation of fox and lynx. As fox and lynx are becoming higher in price, so will the coyote and wolf advance.

Lynx: It is safe to say lynx will bring a materially higher price this season. The demand is excellent for this article.

Lynx Cat: The price of this article follows the price of lynx, and like

the lynx, the demand is good and the price strong.

Fisher: They have just begun to appreciate this beautiful fur in this country. Up to about 1910 the entire collection of fisher was exported. Russia and France were the buyers. Today the demand in America for fisher is more than equal to the supply.

Beaver, like many other kinds of American raw furs, was very largely used for trimming, and the demand for this purpose cleared the accumulation of the last three years. The price will be much higher this season.

Otter sells quite slowly. There is no chance for an advance in the price, except it might be for the extra dark and fine skins, such as used for coat collars.

Red Fox: The demand for red fox has been excellent. This article is bound to bring the highest price ever known to the trade.

Blue, White, Black, Silver and Cross Fox: The introduction of the scarf and muff with the animal effect brought this part of the Fox Family to the front. The low price made it possible to sell them. The great demand caused a rapid advance in the

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100 lb. pkge....	5.00
200 lb. pkge....	9.00
300 lb. pkge....	13.00
600 lb.	21.12

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Supply me enough SAL-VET to last my stock 60 days. I agree to pay the freight, feed it as directed, and will then pay for it if it does what you claim. If it fails and I so report specifically in 60 days you are to cancel the charge and I will owe you nothing.

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Name.....

P. O.....

Shipping Sta..... State.....

price from the low point of last winter and present prices will, no doubt, be well maintained.

Mink and Marten, as one manufacturer aptly expressed it—sold in sympathy with the balance of the line. They move slowly and possibly will do better as the season advances.

White Weasel: We anticipate a much better demand for this article this season and at a much better price than that of 1914.

Grey Fox are selling very well, owing to the great demand for the animal scarf and muff, and it is reasonable to presume that the present price will be well maintained.

Civet Cat: There has been a strong demand for this article the last sixty days, and prices will, no doubt, hold firm.

Badger: The pale skins of the better grades are bringing a very high price, while the lower grades, as usual, move slowly.

To summarize the market as a whole, it is our opinion that the entire list of American raw furs will be greatly benefited by the general prosperity that is apparent thruout America, the increasing demand for natural furs, the demand created by fashion and the naturally increased demand for furs as a necessity.

HOW TO MAKE USE OF THE NORTH DAKOTA PURE SEED LABORATORY

Farmers are gradually learning that while proper systems of crop rotation, cattle raising, corn, alfalfa and potato growing, etc., improve cereal cropping, best results cannot be expected without the general use of good seed.

Pure, disease free seed is primarily essential. It is not worth while to work hard to clean up the land, if road-side weeds are allowed to go to seed, and if one continues to sow the weed seeds with the seed in the drill. It is a surprising fact that many farmers are yet sowing more weed seeds than they kill by their methods of cultivation. This statement applies to mustard, wild oats, false flax, pennycress, tumbling mustard, quack grass—practically all of the worst weeds. These troubles can usually be overcome by proper seed grading, provided one raises good, plump seed.

There are two features in cereal cropping which are a persistent drain on the results from better agriculture. One of these is the gradual accumulation in the crop, due to constant cropping on the same land, of diseased seed—seeds which are internally diseased with blights, such as scab and various head and root blights.

To overcome these the grower will have to recognize their presence by the characteristics of the seed. When a large percentage of blighted head appear in a crop the grain is very likely to be of poor quality to sow on clean land unless it is carefully graded and purified by disinfection before sowing.

and to make lists of those who have seed of high quality. Such lists are sent to any who wish to buy, whether seedsmen or farmers.

In order that these lists may be made out at as early a date as possible, samples should be sent to the Pure Seed Laboratory as soon as possible after threshing. All who can

GOVERNMENT CROP REPORT

Crop production in North Dakota this year aggregates in quantity about 58 per cent more than last year. Prices on December 1 average 10 per cent lower than a year ago, making total value of crop production, on this basis, about 42 per cent more than last year. The estimates are based upon those crops whose values in the last complete crop census represented 93 per cent of all crops.

For the United States production this year aggregates in quantity about 9 per cent more than last year. Prices December 1 average 1 per cent lower than a year ago, making a total value of crop production on this basis about 8 per cent more than last year; these estimates are based upon crops whose value in the last complete crop census represented 85 per cent of the value of all crops grown, and may be regarded as representative of all crops.

A summary of estimates of crop production and prices for the State of North Dakota and for the United States, compiled by the Bureau of Crop Estimates (and transmitted thru the Weather Bureau), U. S. Department of Agriculture, is as follows:

Crops	North Dakota			United States	
	Acreage.	Production.	Price Dec. 1	Production	Price Dec. 1
			Cents		Cents
Corn, bu.....1915	700	9,800	67	3,050,000	57.5
.....1914	500	14,000	58	2,672,804	64.4
Wheat, bu.....1915	8,350	152,000	87	1,010,000	92.0
.....1914	7,285	81,592	101	891,017	98.6
Oats, bu.....1915	2,450	98,000	27	1,540,000	36.1
.....1914	2,318	64,904	37	1,141,060	43.8
Barley, bu.....1915	1,400	44,800	44	237,000	51.7
.....1914	1,450	28,275	45	194,953	54.3
Rye, bu.....1915	180	2,700	79	49,200	83.9
.....1914	131	2,240	84	42,779	86.5
Flaxseed, bu.....1915	660	6,530	\$1.78	13,800	\$1.74
.....1914	840	6,972	\$1.28	15,559	\$1.26
Potatoes, bu.....1915	80	7,200	41	359,000	61.6
.....1914	70	7,630	42	405,921	48.9
Hay, tons.....1915	440	660	\$5.70	85,200	\$10.70
.....1914	400	580	\$5.20	70,071	\$11.12
Sugar Beets, tons.....1915				6,462	\$5.54
.....1914				5,585	\$5.45

Printed and distributed by the Weather Bureau at Bismarck, N. Dak.

Acreage and production in thousands, i. e., 000 omitted.

The Pure Seed Laboratory was established for the purpose of aiding farmers to understand these matters, and to help them to recognize seed qualities. Citizens can send samples of their seed to the Pure Seed Laboratory and receive immediate report as to its quality, purity and viability without cost. The botanist is authorized to certify to the quality of seed

should grade the seed carefully before sending the samples to the Laboratory. When not able to clean the seed let us know. Remember that seed quality is of more value than mere freedom from weed seeds. Some samples of seed can be greatly improved by the use of a fanning-mill, while no amount of grading can improve certain internally diseased types. For this reason,

it is recommended that every farmer have a seed plot big enough to raise seed for his own farm, from which plot all false varieties and diseased plants may be pulled out.

The wheat crop, in particular, suffers severely from blights because of the use of poor grades of seed. Wheat is the most important of all the seeds grown in the state of North Dakota, because more bushels of it are needed for seed and because it is the chief crop of the state. A small deterioration in the yield due to the use of poor seed results in the loss of millions of dollars. We wish to make the Laboratory of the greatest possible use, as well to those who have good wheat which they wish to sell for seed as to those who wish to find it. Wheat of another variety is the worst weed in wheat.

Farmers who know that they have raised a high quality of wheat which is free from admixtures of other kinds of wheat should send in samples at the earliest date possible that it may be listed and possibly certified as to quality. We are particularly interested in listing any Durum wheats which are free from common wheats, as such admixtures are particularly injurious to the making of all Durum products.

Address all such correspondence, packages, etc., to State Seed Commissioner, Agricultural College, P. O. North Dakota.

ROTATION AND RETURNS

One plat at the North Dakota Experiment Station that has been in wheat for 15 years has produced 206 bushels. A similar plat that has been in corn one year followed by wheat three years and so on thruout the 15 years has produced 233½ bushels of wheat while another plat on which the corn was manured and followed by three crops of wheat, produced 262½ bushels of wheat. The total returns for the three plats were: for the first, \$109.39, for the second, \$170.30 and the third \$196.09 or nearly twice as much as from the first one. This is a fine demonstration of how the most simple rotation greatly increases the returns.

SANITARY DAIRY FARMS

Sheltered Location of Barn and Good Supply of Fresh Water Important Factors—Care of Cows.

On a farm where livestock is kept greater attention must be paid to cleanliness than on one on which

there is no livestock. This is particularly true of a dairy farm, for the success of which thoro sanitation is a necessity.

To obtain the most sanitary conditions, the dairy barn should be built on high ground, with good natural drainage and sheltered from the cold winds of winter. Horse stables, poultry houses, hog sheds, privies, and manure pits should be far enough away not to contaminate the cow stable air. There is always a tendency for the barnyard lots and paddocks surrounding the stable to get muddy and foul, but when the barn is situated on a high, well-drained spot this tendency is reduced to a minimum, as the lots soon become dry after a rain and in the spring when the frost leaves the ground. If the yard is inclined to be muddy, it may be improved by drainage and by the use of cinders or gravel. It should be free from mud-holes, and manure should not be allowed to accumulate in it. In severe

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Salted Herring.....per 100-lb. keg, \$3.50

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The Florida Fruitlands Company will sell you no land unless you come to see it. This is an unusual stipulation, but it insures satisfaction to all concerned. The Lake Alfred community possesses many advantages. It affords opportunities to spend the rest of your days in ease and comfort. It is on the main line of a railroad, at a junction point, and is served with hard surfaced roads. The town is established and has improvements—you will not be a pioneer. Write now for illustrated booklet.

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DIRECTORS

Geo. H. Hollister, President Northern Trust Company; F. C. Gardner, Gardner Hotel Company; B. G. Tenneson, attorney, Fargo, North Dakota; Ed Pierce, banker and attorney, F. W. Froenke, President Ransom County Immigration Association, Sheldon, North Dakota; Thomas Pierce, banker, Enderlin, N. D. These gentlemen are prominent citizens of North Dakota, whose names will be recognized by persons familiar with the development of the eastern portion of the State and western Minnesota. They became interested in Florida through spending their winters there and have thoroughly investigated all sections of the State. A considerable number of other substantial citizens of the Dakotas and Minnesota live at Lake Alfred during the winter, and you are invited to share its hospitality.



winter weather, or in the spring when the ground is soft and manure can not be hauled to the fields daily, it should be stored in a manure pit some distance from the stable and not in the basement of the barn or any place in the dairy stable.

A one-story dairy stable is a very good type. It should preferably be located with its length extending north and south and have an abundance of window space. If the stable is located this way it receives the purifying benefit of both the morning and afternoon sun. The construction should be such as to minimize the labor necessary to keep floor, walls, ceiling, and stable fittings in a clean and sanitary condition. The floor, gutter, and mangers should be hard, impervious to moisture, and free from cracks in which filth may collect. The gutter back of the cows should be large enough to hold the droppings; a width of 16 to 18 inches and a depth of 7 inches are usually sufficient. The gutter should incline so as to drain readily unless the liquid is taken up by absorbents.

Every cow stable should have a system of ventilation to keep the air fresh and pure and the cows comfortable without exposing them to injurious drafts. If the smell in the barn is disagreeable at any time, it indicates that the ventilation is deficient. At least 500 cubic feet of air space should be provided for each cow. The feed room, silo chute, and hay chute should be conveniently located, but at the same time they should be in a separate room to keep the odor and dust out of the stable as much as possible.

The Cows and Their Care

To have healthy cows is one of the first essentials of the production of clean milk. If the cows are diseased, their milk is apt to contain disease-producing bacteria or to be otherwise abnormal. Such milk is not clean and is not safe as an article of food, even tho there is no visible dirt in it.

The cows should be tested for tuberculosis by a capable veterinarian at least once a year, and if diseased animals are found the herd should be tested twice a year. All cows which react, showing that they are infected

with the disease, should be removed from the herd and the stable and premises thoroly disinfected. Directions for disinfecting stables are given in Farmers' Bulletin No. 480.

No additions should be made to the herd without subjecting all animals purchased to the tuberculin test before they are brought to the farm. They should then be kept separate from the other animals for at least 60 days and retested. No animals other than cows should be allowed in the stable.

Special attention should be given to the condition of the udder, and any milk which appears slimy, ropy, watery, or otherwise abnormal should not be used as food. As a rule, milk should not be used within 15 days before calving or during the first 5 days after calving. It is well not to use milk from cows which have been given powerful drugs, for these may pass thru the tissues of the mammary glands into the milk.

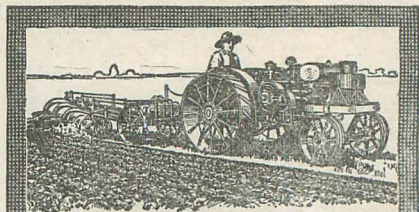
The external condition of the cow is a most important factor in the production of clean milk, and dirt on the outside of the animal's body is one of the greatest sources of milk contamination. It is therefore essential that extra care be given to keeping the cow free from accumulations of mud and manure. Cows on pasture usually keep cleaner than when in the barn, but tho they appear clean they may be very dusty, and it is well to brush them before each milking. When kept in stables they require a thorow cleaning at least once every day. It is a good plan to clip the long hairs from the udder, flank, and tail in order that dirt may not cling to them.



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It is desirable that the bedding be clean, dry, and used in sufficient quantities to promote the comfort of the animal, especially where the floor is of concrete.

The cow should not be groomed, bedded, or fed immediately before milking, as these operations fill the stable air with dust and bacteria. Frequent attention to the distribution of bedding is just as important as to supply a large amount of it. Often a tour thru the stables the last thing at night and a few minutes' attention to the distribution of the bedding at that time will save half an hour's work of cleaning the cows in the morning. If after each milking the manure is removed a considerable distance from the stable, bad odors will be kept from tainting the milk, and the danger of contamination from filth-laden flies will be diminished. The manure should be removed at least twice daily and never handled in the stable immediately before milking. The fly nuisance is caused by accumulations of manure in which the flies breed, and when conditions permit, the manure should be removed daily to the fields. Flies carry bacteria and filth, and earnest efforts should be made to keep the stable free from them. If the stable and its surroundings are clean, free from accumulations of manure and other matter which attracts flies, the stable can be kept fairly free of them by the use of fly poison and traps. In addition to removing the accumulated manure from the gutter every day, the soiled bedding under the cow should be raked back into the gutter and replaced with clean bedding.

The feed for cows should be palatable and nutritious. Moldy and decayed feed and such feeds as may arise from the feeding of hay, grain, cayed feed and such feeds as may injuriously affect the cow's health or the character of the milk should be carefully avoided. The odor and flavor of milk are very readily affected by rape, cabbage, turnips, and other feeds having strong odors, and if these are used they should be given after milking, in which case there is little danger of imparting an unpleasant flavor or odor to the milk. Where pastures are overrun with garlic or wild onion, the cows should be removed from the pasture several hours before milking and given a foddering of hay in the barnyard.

Owing to the dust and odors which arise from the feeding of hay, grain, and silage in the stable, it is best, from a sanitary standpoint, to feed after milking rather than before. A liberal supply of salt should be provided in a place where the cows can

have ready access to it. It is of prime importance that the cows have an abundance of fresh, pure water. Cows which produce 25 pounds of milk a day require 75 pounds or more of water daily, and instances are on record in which heavy milkers have consumed more than 300 pounds of water a day. This large quantity of water is necessary not only for the formation of milk but also for the digestion and assimilation of the large quantities of food consumed, much of which is roughage. It is not wise to permit cows to drink large amounts of ice-cold water, and in order to encourage them to drink a sufficient amount of water in extremely cold weather, it is necessary to warm the water slightly.

ALFALFA-SEED PEST RESEMBLES GNAT BUT IS MUCH MORE DANGEROUS

The alfalfa-seed destroyer, known as the chalcis-fly, does its destructive work in clover or alfalfa seeds, from the Gulf Coast to the northern limits of the United States, according to the United States Department of Agriculture's specialist who has personally seen the widespread devastations of this pest. By harvesting severely infested crops, by cleaning fence lines and ditch banks, and by winter cultivation the grower of alfalfa seed may help to control this insect. A new Farmers' Bulletin, (No. 636) entitled "The Chalcis-Fly in Alfalfa Seed," gives the details of these methods of control, and may be had free of charge on application to the Department.

The chalcis-fly under the microscope is a formidable-looking insect but when seen in the field it is frequently confused with the gnat.

These pests may be seen in great numbers flying over alfalfa-seed shocks and swarming over the sickle bar when the alfalfa is being cut. The eggs are so small as to be invisible to the naked eye and are deposited thru the soft, green seed pods directly into the soft seeds when the pods are about half-grown. Immediately upon becoming a fly, the insect eats its way out thru the shells of the infested seeds, then thru the green pods. Large portions of the seeds are hollowed out in this manner, when they are still green and growing.

The infested seeds which still contain the living larvae of the insect may be recognized by their abnormal shape and usually by the dull brown color. Some of the infested seeds, however, retain their natural color, but they always lack the glossy appearance of normal seeds. The extent to which alfalfa seed is damaged

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WE ANNOUNCED IN THE LAST ISSUE OF THIS PAPER



that we had established a branch house at Fargo, N. D. The only reason we established a branch at Fargo, N. D., was so you people, living in North Dakota and Montana could get your fish in the shortest possible time with the least freight charges. We now want to thank you people for sending in so many orders for shipment from this branch as you now realize we are putting our fish in your homes much quicker and at the lowest possible cost to you as freight charges are a great deal less when shipment is made wholly within your state. You now get your fish more promptly than when you ordered from Two Harbors or Duluth and don't you find the freight charges so small they do not worry you any more? The fish are fine this year, better than ever.

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Pickerel, \$.07½—Pike, \$.10½—Trout, \$.12½.

We will pack any assortment from 10 pounds upwards at no extra cost.

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SCANDIA FISH COMPANY, Dock A, DULUTH, MINN.

by the fly is not generally apparent, owing to the minuteness of the insect and because its destructive work is accomplished within the growing seeds. The alfalfa-seed grower can only estimate the percentage of his crop destroyed by opening a large number of the seed pods and observing the infested seeds.

Caught 51 Rats One week

Trap resets itself; 22 inches high; will last for years. Can't get out of order; weighs 7 pounds. Twelve rats caught one day. Cheese is used doing away with poisons. The trap does its work and never fails and is always ready for the next rat. When rats and mice pass the device they die. Rats are disease carriers; also cause fires. These Catchers should be in every school house. Rat Catcher sent prepaid on receipt of \$3. Mouse Catcher, 10 inches high, \$1. Money back if not satisfied.

H. D. SWARTS
Inventor and Manufacturer
Universal Rat and Mouse Traps
Box 566 : : : Scranton, Pa.

I HAVE SOME Bargains In Northern Minnesota Lands

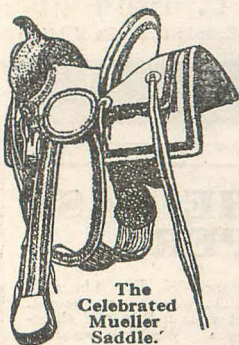
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WHEAT SMUT CONTROL

Wheat growers in this country not infrequently experience serious losses caused by preventable diseases. Wheat is preyed upon by a number of parasitic fungi, three of which are classed as smuts. Two of these smuts are common pests in the wheat fields of North America, the other, commonly known as flag smut, is thus far unknown to this continent, tho it is fairly common in Australia and certain other parts of the world where wheat culture has been in progress for centuries, says the Department of Agriculture.

Of the two smuts Bunt or covered smut of wheat, sometimes referred to as stinking smut, is found wherever wheat is grown, sometimes resulting in losses to the farmers of the United States of \$20,000,000 or more annually. Not infrequently fields planted to untreated seed and giving promise of yielding 30 to 40 bushels per acre of good wheat, will produce a crop of covered smut amounting, in some cases, to as much as 40 to 60 per cent of the crop.

This smut disease is caused by a parasitic fungus which attacks the growing wheat plant before the first leaf appears above ground. Once inside the attacked seedling it continues its growth and by the time the wheat begins to head the diseased plants produce a crop of smut. If we examine the heads of such a plant we find instead of normal wheat grains only a lot of smut balls. In other words, the materials produced by the living plant for the purpose of building up sound wheat grains have been consumed by the parasite in forming its masses of smut spores, which finally occupy the exact position in the wheat heads that would have been filled by the kernels had they been allowed to develop. These smut balls consist of nothing but millions of spores enclosed in each case by a thin enveloping membrane. When the smut balls are crushed the spores give off an odor not unlike that of herring brine. The liberated spores become attached to the seed, which, if planted without previous treatment, may produce another crop of smutted wheat.

Treated Seed with Formalin

Bunt or covered smut of wheat is one of the most easily prevented of any of the cereals diseases.

The following procedure is recommended: Run all seed wheat thru a fanning mill in order to blow out the unbroken smut balls. This being done, the grain should be soaked 10 minutes in a solution consisting of 1 pound of commercial formalin (obtainable at nearly all drug stores)

added to 40 gallons of water. The seed thus treated is next allowed to drain and is then piled on the floor and stirred frequently until sufficiently dry to sow. If, during this process, the kernels have swollen very much, the drill should be set to sow a little thicker, else the quantity sown per acre will be less than was intended.

Rotation in Severe Cases

Recent experiments have shown that in certain sections of the country the soil of a field producing a crop or smutted wheat this year may harbor enough smut spores to cause the appearance of smut in next year's crop if the field be reseeded to wheat. This sometimes occurs, where smut is very bad, in spite of the planting of treated seed, and shows that in such localities crop rotation should be practiced in addition to seed treatment. Bunt or covered smut of wheat attacks no other cereal crop, but other cereals have their own smut diseases.

Loose Smut

The other wheat smut occurring in this country, known commonly as loose smut, is not so serious as bunt altho it probably produces an average loss of three-fourths of one per cent of the total wheat crop of the country. Loose smut may be prevented by treating the seed by the Jensen hot-water method or some modification of it.

The Jensen method consists in soaking the seed for 10 to 15 minutes in hot water at a temperature of 132 to 133 degrees, F. It is highly important that the water shall not rise over 135 degrees or fall below 130 degrees, F. A temperature below this will not kill the smut, while a temperature too high may affect the germination of the seed. The grain after treatment should be immediately spread out to dry. If it can not be spread at once it should be dipped into cold water to cool at once, and spread as soon as possible.

MANURE VALUABLE

The best results from manure will be secured when it is hauled direct to the field, 6 to 8 loads per acre, to be plowed under for corn or top dressed on pasture or grass land. It will benefit these crops and also the grain crops that follow. When fresh manure is to be applied to a grain crop top dress with it 6 to 8 loads, or if rotted manure is available, it can be plowed under. On the North Dakota Experiment Station Farm, manure applied to corn land 6 loads per acre, has increased the corn and the following three wheat crops enough to make a return of \$1.50 per load.

COST OF HORSE LABOR

The annual cost of keeping a horse was found to be \$90.40 in Rice County, Minnesota; \$87 in Lyon County and \$75.07 in Norman County. These figures are averages for the years 1904-1907. In Rice County these charges were as follows: Interest on investment \$5.54, depreciation \$5.56, harness depreciation \$2.10, shoeing \$1.42, feed \$63.49, labor \$11.88 and miscellaneous \$.40, making a total of \$90.40. These costs have increased. This emphasizes the need of keeping the horses busy and of having no idlers on the farm.

PREVENT WINTER PASTURING

Stock pasturing on alfalfa in the fall and winter often causes winter killing. The growth of alfalfa is needed to hold snow.

GRINDING GRAIN FOR DAIRY CATTLE

In a test to determine the need of grinding feed for dairy cattle it was found that cows fed whole corn passed 23% of it whole in the droppings, heifers 11%, and calves 6 $\frac{1}{4}$ %. When fed whole oats the cows passed 12%, the heifers 5 $\frac{1}{2}$ % and the calves 3%. When whole oats and corn were fed together the cows passed 26 $\frac{1}{2}$ %, the heifers 17 $\frac{1}{2}$ % and the calves 6% which indicates that the dairy cow needs her grain ground but that calves waste very little when fed whole grain. With beef cattle grinding corn has not been found to pay.

PURE BRED PREPOTENT

The pure bred animal has been bred for a long time to fix certain desirable qualities. When mated with just common animals the pure bred has the power to impart these desirable qualities to its offspring in a marked degree. A pure bred male should always be used.

FARMERS' INSTITUTE

Now is the time to apply for a farmers' institute. The schedule is being made up. When it is completed it will be more difficult to secure an institute as well as harder to get it at the most desirable time. Address the Superintendent of Farmers' Institutes, Agricultural College, North Dakota.

SLENDER WHEAT GRASS

Slender wheat grass is a native of North Dakota. It is drought resist-

ant. When cut early it makes a good hay. Left too long it becomes woody. It is easily killed by one plowing. For pasture it is not as good as bromus. It has been found at the Dickinson sub-station that 15 to 20 pounds of seed to the acre give a good stand. This grass tolerates considerable alkali. Alfalfa is a good crop to mix with it.

AGE AND TUBERCULOSIS IN CHICKENS

In a test of a flock of poultry by the Veterinary Department of the North Dakota Experiment Station it was found that 3 per cent of the year-old chickens had tuberculosis, 24% of the two-year olds, and 86 $\frac{1}{2}$ per cent of the three-year olds. The hen over two years old is usually not a profitable producer.

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Every farmer will be pleased to learn of a most effective remedy for bots and other worms in horses which is absolutely reliable and has the indorsement of the U. S. Government. It is put up in Gelatine capsules which by a peculiar action will kill every worm in the stomach. Hundreds of bots and other worms have been removed from a single horse by these capsules. They can easily be given and used on mares in foal and colts, as they do not injure the stomach in any way; they have been used by thousands of farmers and veterinarians with excellent results. If your horses are run-down, stubborn, lazy, etc., just try some Heureka Capsules and see what they will do. Price \$2.00 for 12 capsules or with Balling gun: Two dozen at \$5.00; four dozen \$8.00. Order today from the Breeders' Remedy Co., 47 Biddle St., Dept. 45, Milwaukee, Wis.—Advt.

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CARE OF THE HOG—HOG CHOLERA

T. A. Hoverstad, Agri. Com.,
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What about Hog Cholera? Shall it be allowed to continue to lay its heavy toll on American agriculture and on industries depending on agriculture? In spite of the continued efforts of Sanitary boards, backed by laws and quarantine regulations, the loss seems to be on the increase. It is estimated that the loss in 1913 amounted to 65 million dollars. It is plain that this loss must be stopped even if drastic measures must be resorted to. It is the swine grower that is especially interested in this question. He is the one that sustains the greatest loss. He is also the one who will finally become the most effective agent in stamping out the disease. One farmer or a group of farmers can do but little. It is only when there is concerted action of the farmers that results will be secured.

Hog cholera is not simply the farmers' problem. It is a state and national problem. The magnitude of the problem is such that a large comprehensive plan for the eradication of the disease must be laid, and organized agencies set to work to carry out such plans.

The National Government has appropriated \$500,000 to help eradicate hog cholera. The work is put in charge of the Division of Animal Industry of the National Department of Agriculture. Their policy will be as follows:

1. Experiment to demonstrate the practicability of eradicating hog cholera from selected sections of the country. Renville County, Minnesota, has been selected for such experiment.

2. Supervision of private and, where necessary, state serum plants, so as to protect farmers against the use of spurious and dangerous serums.

3. Demonstrational and educational work among the farmers in co-operation with the states in order to bring about a better understanding of the disease and approved methods of combating it.

The National Department of Agriculture will co-operate with the Agricultural Colleges, Experiment Stations and the various sanitary boards. The farmers should be prepared to co-operate with these agencies in order that results may be secured at earliest possible moment.

Preventing the Spread of Hog Cholera

Having the hog cholera germ on the premises and understanding its nature, it is easy to determine the first step. There is only one thing to do and that is "quarantine." The most rigid quarantine should be established. Every agency that can possibly carry the germ must be controlled. The second step is "notification." The local board of health and also the State Live Stock Sanitary Board should be notified. It should also be made known in the neighborhood. Notices should be posted on pens, pastures, and buildings that are quarantined. Every precaution should be taken to confine the germs until they are destroyed. All persons, animals, vehicles, etc., should remain on the premises, and neighbors with their animals and vehicles, etc., should try to stay or be kept away as much as possible. Owners of dogs should tie them until the disease is eradicated and stray dogs should be so treated that they ever afterwards would neither carry germs or anything else. Birds are

most difficult to control. Small pens could be covered with poultry netting but this would be impractical with a hog pasture. Shooting will have a

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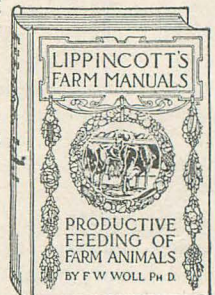
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tendency to scare them away. No breeding stock should be purchased from a neighborhood where hog cholera exists, and special precautions should be taken to see that the disease is not contracted in transit.

Prevention by Hog Cholera Serum

There is no known remedy for hog cholera. There are many remedies on the market. These should be allowed to remain on the market until endorsed by competent authority. An anti-hog cholera serum is discovered which seems to be effective in preventing the disease. This serum has been given extensive trials and has proved quite satisfactory. But, while this serum has proved effective, the machinery for the proper administration of this serum has not been organized. The serum should be administered only by competent persons. The average hog grower should leave this matter alone.

How to Destroy the Germ

The germ may live for a long time in the soil, buildings or other places where it is harbored. Its vitality is very great. It can resist many of the most effective germicides. It can live thru cold winter weather. The most effective destroying agencies are fire, steam, boiling water, cresol and lime. When the infected area is determined, the problem of destroying the germ is the next question. This is far from being a simple problem. The sick animals should be killed and all dead animals that have had hog cholera burned. All litter, troughs, cheap shelter, etc., should also be burned. Fire is by far the most effective disinfectant known. Fire, however, cannot be used in all places. Compound solution of cresol, lime, etc., should be used wherever it is practical. Many suggestions are advanced showing how to destroy the germs in pastures. To a layman it appears that the only practical way will be to let sunlight and air do the work, allowing a long time before such land is again used for hogs. Three to six months is usually recommended. A year would be better. It would be wise to crop this land to some field crops for a year or more before any hogs are again put into such pastures. In planning a hog pasture it would be well to select such ground that the drainage water would not flow to any stream along where other hog pastures may be located. Many cases of infection have been traced to running streams.

The Healthy Swine Herd

How to keep the herd healthy is yet the biggest question. Cholera is the farmers' problem rather than the veterinarians'. It is a question of sanitation rather than serum. If the

farmers know how to grow hogs to the highest degree of physical perfection the subject of diseases would not be such a big problem. In doing this there are three things that must be given consideration:

First, Breeding Stock

The herd of breeding stock should fully be matured. Too many of the hogs are from immature stock. No animals should be kept for breeding purposes that are not strong, healthy, vigorous and mature. Stock of low constitutional vigor are susceptible to diseases.

Second, Housing and Shelter

Hogs require sanitary comfortable surroundings. A filthy, dirty, damp, dark place is not a fit place even for a hog. Sunshine and fresh air should be provided in abundance. Hogs require much more fresh air than horses or cattle. Hogs do not require necessarily a warm place, but they should be kept where the temperature is uniform. Cleanliness is as essential to the health of the hog as any other animal. Frequent cleaning of the hog house not only pays well but is necessary if good results are to be had. The hog is one of the most cleanly of all the animals on the farm.

Third, Foods and Feeding

Do not make the hogs a receptacle for swill. Hogs need clean nutritious food like any other animal. Table scraps from the house can be fed to hogs. This is not swill. Scraps containing raw pork should be boiled. Do not confine the animals to a pen. The hog pasture is taking the place of the hog pen. A succession of pastures is not only necessary for the health of the hogs but for the profit of the owner. Rye or brome grass will furnish forage in early spring. This can be followed by clover, alfalfa, or

grain with rape sown for pasture. These pastures must be supplemented by a limited amount of ground grain. Alfalfa and clover hay will be found a splendid feed to help to winter the brood sows. It is doubtful if yard feeding of market hogs in winter can be made profitable. Clean water should be given them in abundance.

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**PROF. C. B. WALDRON, Fruits, Forestry,
Insect pests.**

Remittances should be made by Drafts, Post-
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Address all business correspondence to the
Lisbon office.

Vol. 17 DECEMBER, 1915 No 6

Be thankful.

Less than half the arable land in the United States is improved and under tillage.

How to raise a profitable crop with from 14 to 16 inches of precipitation is a problem worth solving.

Don't fail to attend the Tri-State at Fargo, January 18-21. Matters of great moment will be discussed.

The capital investment of farmers exceeds that of all the capital invested in railroads, manufactures and in general business.

The communication from the Calvin Club is worthy of careful consideration. Co-operative buying and selling should be the watchword.

If twenty or thirty or forty thousand farmers contribute six dollars each for any purpose that seems to please their fancy—whose business is it?

If you are not reading the Experiment Station bulletins regularly begin at once. They represent the best thought on the subjects you are vitally interested in.

The North Dakota A. C. Crack Squad certainly did its share toward advertizing this state, and incidentally the Agricultural College,—thruout the Pacific coast.

After looking over several flocks of poultry we are surprised at the large number of varieties that can be mixed together in one chicken. How much better to have all the chicks of one variety!

A good New Year's resolution is to determine to make the home grounds more attractive. Really the expense of a few trees is insignificant compared with the comfort and protection derived from them.

To the man who has served his day and generation acceptably, who has done his share in converting a wilderness into a promising commonwealth, old age comes on gently with no terrors or dark forebodings.

A packing house located at or near Fargo would prove a mighty good investment, not only for its promoters, but for the entire state. Paying freight on livestock east and return freight on the dressed meat again is a losing game—for North Dakotans.

We have devoted considerable time this month to the Boys' and Girls' Institute, and we trust to the advantage of both the youth and the fathers and mothers. The boys and girls of today who are in the forefront of agricultural activities are the future farm advisers and leaders in home economics. We honestly believe that every one who attended the Institute returned with an enlarged vision, with a more definite purpose, and with keener realization of the dignity of the farming profession.

SCHEDULE FOR 1915-16

The following subjects will be treated in the columns of the North Dakota Farmer during the coming winter and spring:

January. Horses and Seed Germination.

February. Cattle, and Home and School Grounds.

March. Sheep, Swine and Poultry and the Home and School Garden.

April. Birds, Forestry and Roads.

May. Purpose of Cultivation and Farm Conveniences.

Every country has its good and bad points as measured by superficial critics. After all they average up when a thoro survey is made, just as men average up. The good and the bad in people or countries run about even, only some things about a country and some habits of men are more apparent than others. The rough fellow is often kind-hearted and honest, while the smooth, affable fellow may be callous and hypocritical. And so there are worse blemishes inherent in countries where the winters are less severe than here, but where bugs,

ticks, lice, and malaria hold high revelry the whole year round.

The country church like the country schoolhouse should be used more frequently for community gatherings as well as for educational or religious purposes. The country church will be much better patronized if the community spirit is aroused by frequent get-together meetings for innocent amusement, or for the discussion of problems the neighborhood is interested in. The pastor should be acquainted with rural problems and in sympathy with everything that relates to country life. He should even be able to advise, where help is needed, so that the social and religious life of the community will be satisfying, and the young people, especially, proud to be connected with the soil.

It is claimed that farmers will not cooperate; that they will not organize and stand by their organization; that they are jealous of each other, etc. Well, that doctrine has been preached so industriously by those who do not want farmers to organize that farmers themselves have come to seriously believe that they cannot stick together and cooperate in matters affecting their social, political, and business interests. Once let them disabuse their minds of this pernicious belief, however, and they will surprise those who do not want them to cooperate, as well as themselves, with what ease they can organize for their self-defense against those interests that exploit them, and also cooperate on equitable terms with those interests that aid them in their legitimate business.

THIRD ANNUAL ESSAY CONTEST

For the best essay written by a member describing the Boys' and Girls' Institute of 1915 a five-dollar gold piece will be given by the publisher of the North Dakota Farmer.

For the next best a three-year subscription to the North Dakota Farmer.

For the third best a two-year subscription.

For the fourth best a one-year subscription.

Conditions

The number of words must be not more than 1200 and not less than 800. Each manuscript must have the name, age and address of the writer and must be received not later than January 10th.

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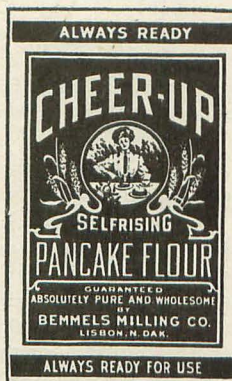
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Livestock Department

FARM AND STOCK NOTES

N. J. Shepherd

To make a success of farming avoid extremes.

Change of food is better than mixing it.

A stingy feeder cheats himself more than the animal.

A market is often of more consideration than cheap land.

Rotting manure makes it immediately more available.

Hogs give quick returns and small investment of capital.

Cheap inferior goods are unsatisfactory and expensive in the end.

Well-oiled machinery requires less power to run it and it wears less.

Persistent good care and feeding are among the principal elements of improvement.

The hog utilizes much on the farm that would otherwise go to waste.

When you are your own customer you save the middleman's and retailer's profit.

The more time it takes to put flesh on an animal the more it costs.

When stock are not made comfortable more or less of the feed is wasted.

Pigs cannot be pushed too fast provided the right kind of food is used.

In nearly all cases the offspring of immature or pampered animals is predisposed to disease.

The more time it takes to fatten an animal the greater becomes the cost of maintenance.

With separation on the farm it is possible to market all the fat with much less work.

Feed sold from the farm in the form of butterfat and pork brings the best profits.

Other things being equal, the less the butter is worked the better will be the quality.

The man who cannot learn from his neighbors' mistakes will teach his neighbors by his own.

It is not the hardest labor but the best directed labor that accomplishes the best results.

The nearer an article is put into condition to suit the purchaser the better for the producer.

Raise such stock as the market requires; when the purchaser seeks the producer the best prices are obtained.

The cow that gives the largest mess

of milk is not always the most profitable one in the herd.

As a rule the crop which can be fed upon the farm is worth more for that purpose than to sell.

The ripening of cream is known by its turning slightly acid without becoming bitter or in any way ill flavored.

Improvement in breed means economy in feed; not less feed but better returns in proportion to amount of food consumed.

Any part of the farm or any stock which is not profitable is a tax on all the rest of the farm.

Only liberal feeding is good feeding, but liberal feeding does not consist of mere abundance. Stock food should be nutritious as well as abundant.

Radical difference in treatment and sudden changing of food sometimes results in disadvantage to the health and thrift of the animals.

Dairying conserves soil fertility as no other kind of farming does and no market will pay as good a price for the crude and bulky products of the farm as the dairy cow.

There is one rule in stock raising that may be steadily and safely followed. It is to push all stock to its full growth as rapidly as possible and sell as soon as fully ready.

A variety of food necessarily lessens waste, for the animal then gets all the elements essential to animal growth. A continual ration of but a single item will probably supply some elements to excess, and that which is not made use of is wasted; while a variety conduces to good appetite also.

It is a good rule to mate young sows with a mature boar, one that has done service before, and to use young boars on sows that have had at least one litter of pigs, in this way, to a certain extent at least, you will avoid the results of immature breeding which are sometimes had if both boar and sow are very young.

The usefulness of a horse depends upon its early training. The first part of this training should be completed before this colt is a year old. During this period its disposition is formed and its future character is fixed. It will be docile, tractable, and gentle, precisely as it has been raised during the first few months of its life; and whatever vices it may develop in the future will all be due to errors made now.

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Pure bred Percheron Horses and Shorthorn Cattle Stock for sale. Nels Knutson & Sons, R. 1, Fullerton, N. D.

THE PLEASANT GROVE FARM at Holmes, Grand Forks County, sells registered Shropshire and Oxford Rams and Ewes; also Polled Durham Bull Calves. R. E. Strutz, Bismarck, North Dakota.

FOR SALE. Two Holstein Bull Calves, nicely marked and fine animals; Ages three and four months. Sired by my herd Bull Sir Albino Beets Segis No. 116811. Wm. Pewe, McHenry, North Dakota, R. R. 1.

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R. R. 2, Fargo, : North Dakota

ENVILLA STOCK FARM

Envilla Stock Farm, Cogswell, N. D. will quote you special prices on Angus and Holstein Cattle, Shetland Ponies, Duroc Jersey Hogs, Wolf Hounds, Collies, Rat, Bird Dogs and other breeds, Angora Cats. All varieties of chickens, turkeys, geese, ducks, guineas, pheasants, rabbits, ferrets. Pets. Live Foxes, Skunks, Mink and Badgers.

Bixby's Red Polls

My herd bull, J. D. Merryweather, Nol 24396, is the son of J. D. Millie, A. R. Grand Champion cow at Minnesota and Montana, in the 1915 show-ring and won the milk and butter contest with Guernseys, Jerseys and Brown Swiss competing with records of 600 pounds butterfat. J. D. Millie weighed 1280 pounds at thirty months old, and is full sister to the World's Champion two-year-old heifer. J. S. BIXBY, : LISBON, N. DAK.

THE DAIRY FARMER

The Importance of the Dairy Farmer
Charles Cristadoro

In ten years the bank deposit of Wisconsin increased 300 per cent, trebled, all on account of the dairy cow and her produce, condensed milk, butter and cheese. Eventually, just a question of a few years of applied brains to the soil, in raising alfalfa, and dairying will thus lead all the other industries of the state. There can be no argument upon this point whatsoever, just a matter of industry, brains and patience. It can not be accomplished overnight, but it will come about in time, and it is not far off at that.

The silo and the dairy cow are the mainstays of the dry-farmer. Feed-

the cost of it each day, and what the milk from that cow means in dollars and cents, and thus detecting the ornamental, star cow-boarders, drones in the herd as it were, weeding them out and supplying their places with better producers. Like following Wellington's advice, the farmer cuts short his losses. Whether cows are just cows, scrubs, or whether they are "grade cows," or whether they are "pure bred" the dairyman is learning what a difference it makes, and the wise dairyman secures a pure bred sire, elevates his scrub progeny to grade conditions and, in the process of dairy evolution, he in due course has a herd of pure bred, all of which takes time, money, brains and patience. In the matter of value of the scrub and the pure-bred calf, this is brought home to him. The two cost the same to raise but one is

dairies of the land, from 10 per cent to 90 per cent. Conservative men estimate that our dairy cows, of the entire country, average 50 per cent



A Herd of Pure Bred Holsteins in their Native Land

ing from a silo is beginning to be regarded as more economical than pasturing, even, in sub-humid sections. The balanced ration, so much protein and so much carbohydrates, is being better understood every day, and the fact made evident that between a scientifically balanced ration and a haphazard "any old kind" of a ration is a matter of 25 to 40 per cent in the milk yield. It is even being learned that between an ordinary pasture field and one scientifically fertilized, there is a difference of 25 per cent in the milk yield, more or less.

The dairyman finds that it pays to watch carefully what the cow eats,

worth ten to twenty times as much as the other. The dairyman, instead of poohooing and laughing at the tuberculin test, the only known safeguard against the white plague in the dairy, bovine tuberculosis, is applying it, especially as it has been shown that the afflicted cows segregated, their milk can be made safe by pasteurization and that the calves from such infected cows can be reared to a perfect condition of health by removal and feeding only upon milk that has been pasteurized, in fact pasteurizing all milk, even the skim milk that is returned from the creamery. Dairy tuberculosis is no theory, for estimates vary, as to its existence in the

Originators of the Famous O. I. C. Swine 1863

No Cholera, Foot and Mouth or any other contagious Disease in our locality for over 50 Years

Why lose profit breeding and feeding scrub hogs?

Two O. I. C. Hogs Weighed 2806 lbs.

Will ship you sample pair of these famous hogs on time and give agency to first applicant. We are originators, most extensive breeders and shippers of pure bred hogs in the world. All foreign shipments are

U. S. Gov't Inspected

Write-to-day-for Free Book, "The Hog from Birth to Sale"

THE L. B. SILVER CO.
544 Vickers Building, Cleveland, Ohio

PRAIRIE DELL STOCK FARM, GOLDEN MODEL DUROCS

The Prairie Stock Farm offers some of the best bred pigs in the state, sired by the following boars: Dakota Model and Golden Chief, out of shows by the following noted boars: Grand Champion Chief Col. International Grand Champion Volunteer, Dakota Model, and Golden Chief, and other good boars. Dakota Model was one of the largest boars in the state for his age. He was sired by Golden Model XX, a first prize hog and he by Golden Model 2nd. Dakota Model's dam was a half sister to the twice grand champion Crimson Beauty that sold at public auction for \$610.00. Golden Chief is an extra large hog. He was sired by Col. Chief 2nd, first prize at Minnesota and South Dakota state fairs, and he was a litter sister to the Junior Champion boar at South Dakota state fair. Choice pigs of both sets. Sows bred or open. I can sell unrelated pigs. Ship via Soo or Great Northern.

Maurice H. Bliss, - - Genesee, N. Dak.

HOLSTEINS. Beautifully Marked Holstein heifer and male calves, 15-16ths pure, 4 to 6 weeks old, \$20.00 each, crated for shipment anywhere. All from mature dams and heavy milkers, guaranteed. One car heifers a year old, \$45.00. Write or send order to Edgewood Farm, R. 10, Whitewater, Wis.

DUROC JERSEYS Gilts out of such sows as Golden Model Queen 6th, Model Beauty and other sows as well bred as could be bought at the sales last winter. Write H. N. HOYME, Jasper, Minn.

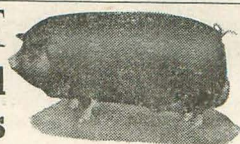
HOLSTEIN Cows, Heifers and Young Bulls. All ages. Write Envilla Stock Farm, Cogswell, North Dakota.

Lyndale Stock Farm

Breeders of Registered Red Polled Cattle, and Big Type Poland China Hogs. Some good bull calves for sale. Also have 75 (March and April 1st pigs now ready to ship. Mostly all sired by a "Peter Mouw" bred boar.

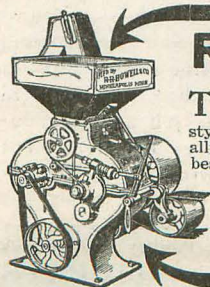
J. E. BASS & SONS, Props.
Tolley, North Dakota

20 BULLS AT \$150.00 EACH. For quick sale and make room for young calves, we are offering 20 GUERNSEY and RED POLLED bulls o. A. R. breeding for \$150.00 each. Write for sales list at once. Jean Du Luth FARM, Duluth, Minn.

BIG TYPE
Poland
Chinas

With quality; 100 to select from. Can furnish pairs not related, sired by four leading herd boars in the 1000-lb. class, Mouw's Jumbo 3rd, Dignans Chief, Baron and Miller's Big Chief. We are booking orders for Gilts to be bred for Spring litters. Prices reasonable. Pedigrees furnished.

J. A. Dignan
Waverly, : : : Minn.

ROLLER FEED MILLS
GRIND A WAGON LOAD OF FEED FOR 10 CENTS.

THIS is the Famous Howell Roller Mill you have heard so much talk about. The new improved mill for the scientific grinding of grain. Old style Burr and Stone Mills are out of date. Thousands of them are being annually replaced by the Famous Howell Roller Mills. Grinds twice as fast as the best burr mill made. Does not heat the feed. Grinds Graham and Rye flour as well as feed. Has big capacity. Requires little power. No burrs or stones to wear out. Guaranteed to last a life time. Made in 13 sizes suitable for any size engine. Save one-half your time, gasoline and money by using a Howell Roller Mill. Write for catalog D.

R. R. HOWELL & CO., Mfrs., Minneapolis, Minn.

tuberculous. That means over ten millions of infected dairy cows in the land. Out of 8000 California cows tested, 31 per cent of them were found to react. And California, with its out-door climate and dairy tuberculosis being regarded as a barn disease.

So the consumption of milk can be made clean and safe by machine clarification first, to remove the physical dirt, which to a greater or lesser degree gets into all milk, and then pasteurization, 145 degrees F. for thirty minutes. Cleanliness should be the religion of all dairymen. Dairy-

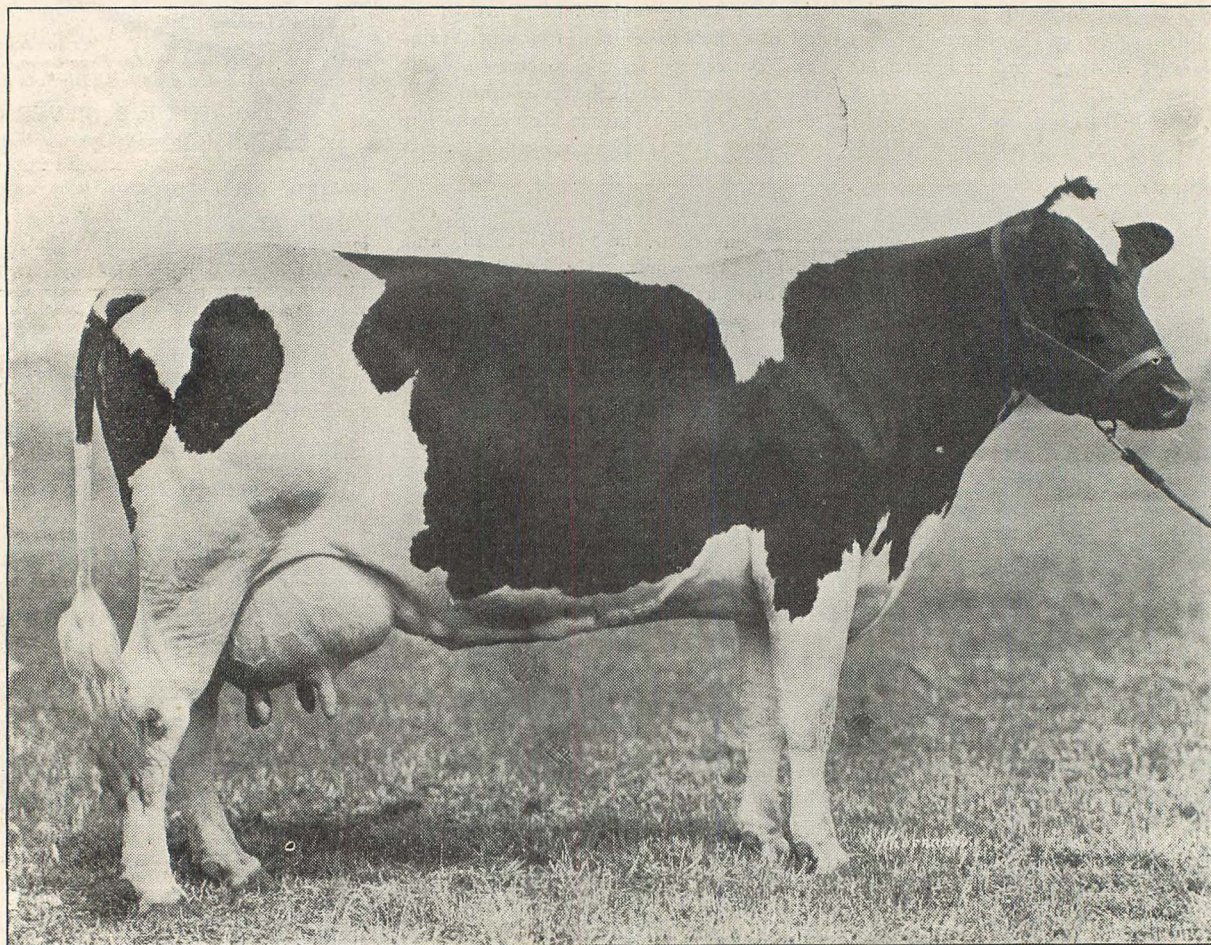
about all the value many cows have in dollars and cents to the dairyman is in the manure sold, for the milk product just about brings in enough money to pay for the feed consumed by "scrub" cows. When such is not the case even the manure sold must help to pay for the feed and the operating expenses. This may be "dairying" but it is infernally poor dairying, in practice.

"How long would a business manager keep a traveling salesman on the road if his sales did not produce above his expenses? How long would a manufacturer keep a machine in

amongst his cows.

The man running a power plant knows what food fed under his boiler, in the form of coal or oil, and how much, gives him the most steam. How far does the dairyman go into the question of what rations, their balance, cost, etc., will keep the cow in flesh and strength and at the same time give the most milk and produce the greatest profit?"

And yet it is just a matter of finding out thru a simple cow-testing association, at a negligible cost or expenditure, all about his dairy.



"The Silo and the Dairy Cow are the Mainstays of the Dry Farmer"

ing is a long and interesting subject. Our back country farmer should look into the dairy question.

The Real and the Make-believe

How many dairymen are there who, going into their cow-barns, can walk along and point out cow after cow and give her producing value, say how much she is bringing in above the cost of her feed? Very few, perhaps not one single dairyman.

Dairying is a manufacturing business; and the articles of manufacture are milk and cow manure. We might as well talk plainly and get down to real business. And it is a fact, that

his plant that was costing him money to run daily, a loss instead of a profit maker?

Yet here is the cow, a milk producing machine, requiring costly feed and help to run her, and the dairyman may "guess" that she is a producer instead of a loser, but he don't know really anything about it. How long could a landlady run a boarding house and not know who paid up Saturday night or who did not? Keeping "star boarders" would close up her house. But the dairyman keeps star boarders and ignorantly, for he can't tell one from another

And to get across lots and to the point, why do not the dairymen form an association, hire a competent man and, paying him a remunerative salary, set him to work finding who the star boarders are and weeding them out and supplanting them with producing cows? It is safe to say that such a man, day in and day out on the job amongst our dairies, would prove an investment that would mean \$100 in returns for every \$1 paid out.

If you wish to sell your Poultry or Livestock
ADVERTISE, - IT PAYS

THE FEEDING AND CARE OF DAIRY CALVES

Teaching the Calf to Drink

In nature the calf sucks the cow until it can support itself. In modern dairy farming, however, the value of butterfat and whole milk forces the dairyman to separate the calf from the cow soon after birth. The milk produced by the cow for the first few days (colostrum) has properties which put the calf's digestive system in good working order. It is therefore necessary that the newly-born calf have this milk. It is a good practice to let the calf suck the cow for about 48 hours after birth, but if weak and poorly developed it may be well to let it suck for several days to gain strength.

The longer a calf remains with the cow the harder it is to teach it to drink, but it is usually a simple matter to teach a good robust calf to drink if taken when not more than 2 days old. Before this is attempted the calf should be kept from the cow for about 12 hours; it will then be very hungry. About 2 quarts of its mother's milk, fresh and warm, should be put into a clean pail and held in front of the calf, which will sometimes put its nose into the pail and drink without coaxing. In most cases, however, it will be necessary to let the calf suck the fingers and by this means gradually draw its nose into the milk. The fingers should be removed carefully as soon as the calf gets a taste of the milk. It will oftentimes take its nose out of the milk in a few seconds, and if so the operation will have to be repeated. Patience is necessary. Usually after the second or third feeding the calf will drink alone. Occasionally a calf is stubborn and its nose has to be

forced into the pail; in such cases it should be straddled and backed into a corner. The nose is then grasped with one hand, two fingers being placed in the mouth and the nose forced into the milk, when the calf, by sucking the fingers, will draw the milk up into its mouth. The fingers should be gradually removed and this operation repeated until the calf will drink alone.

Time of Feeding and Quantity of Milk to be Fed

When a calf is young it is best to feed it three times a day, as nearly eight hours apart as possible; but many successful feeders feed only twice a day. The calf must be fed regularly and in equal quantities. It is impossible to give a rule which will apply to all cases, for some calves have greater appetites than others, grow faster, and therefore should have more milk. The working capacity of the stomach of the calf is small, and during the first few weeks more troubles are caused by feeding too much milk than by feeding too little. As a rough guide to the inexperienced feeder the following is suggested:

First week. Feed a 60-pound calf 4 quarts a day of its mother's milk, warm from the cow.

Second week. If no digestive troubles appear and the calf is thrifty, increase the feed to 5 or 6 quarts of whole milk a day. This does not need to be its mother's milk.

Third week. Feed as for second week, except that 1 quart of skim milk is substituted for 1 quart of the whole milk.

Fourth week. Same as third week except that one-half of the milk should be skim milk and one-half whole milk.

When the calf is one month old it

may receive all skim milk provided it is thrifty. The amounts can be increased gradually until it is 3 months of age when it should be taking 8 to 10 quarts a day.

The foregoing rule for feeding applies only to a calf weighing about 60 pounds at birth. It may be varied according to weight and the vigor of the calf. Experience will soon teach the feeder how to vary the amounts. Larger calves will need a little more milk. When skim milk is used instead of whole milk some feeders attempt to feed more of it, because they think that the extra amount given will compensate for the loss of the fat. This is entirely wrong. No

Our Registered Chester White Boars of March and April farrow are ready for service. Good enough to ship to you C. O. D. **Colonial Stock Farm, Esmond, N. D.**

GUERNSEY COWS AND BULLS

\$50.00 Buys a bull calf
\$100.00 Buys a yearling bull
\$125.00 Buys a heifer calf
\$150.00 Buys a two-year-old bull
\$200.00 Buys a mature bull or cow

"McLARAN OF WRENSHALL," MINN.

MISCELLANEOUS

MEN'S SWEATER COATS, 69 CENTS. Men's gray ribbed sweater coats, heavy winter weight, first quality, v-neck, and two pockets; plain woven border with good quality buttons. These are part of our war orders that were not delivered, we are in a position to sell them while they last at 69 cents each, postpaid. **Phil-Ray Company, Marble Falls, Texas.**

MISSOURI AUCTION SCHOOL

FREE CATALOG KANSAS CITY, MO.

WANTED: Information regarding good farm or unimproved land for sale. **R. G. List, Minneapolis, Minn.**

LEARN TO SPEAK IN PUBLIC. We train men and women to be good public speakers. Money, position and prominence to be gained thru good platform work. Total cost is only \$5.00. We teach other things—send for outline. **Prin. W. C. Moore, New Egypt, N. J.**

WANTED. Live Foxes, Skunks, Mink and Badgers, any time. **Envilla Stock Farm, Cogswell, N. D.**

WANTED to hear from owner of good farm for sale. State cash price and description. **D. F. Bush, Minneapolis, Minn.**

POWER FARMING. The magazine of farming with mechanical power. Send 10 cents for three months' trial subscription. **Power Farming, Box C, St. Joseph, Mich.**

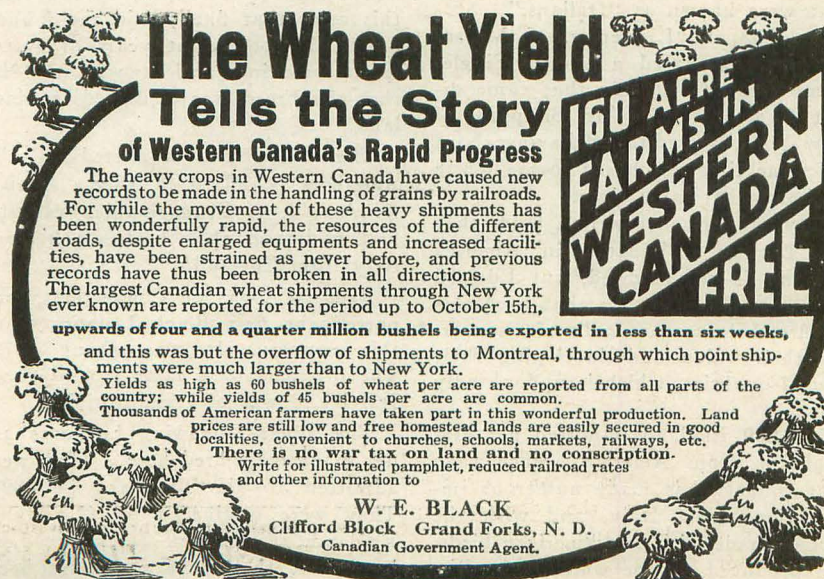
Auctioneering

COL. H. A. KINNEY

Real Estate and Registered Stock Specialist—22 years experience. Write for dates and terms. Breeder and shipper of Chester White hogs. Larger blood lines for 1915. **NORTH DAKOTA Milnor,**

DAD'S ELECTRIC LANTERN

TRADE MARK
300-FT. of POWERFUL ILLUMINATING BRILLIANCE
IT'S A DANDY HANDY LANTERN—ASK TO SEE IT—FIRELESS—EVER-READY—PRACTICAL FOR ALL LANTERN USES
LIGHTS WITH ANY 6-INCH SIZE STANDARD DRY CELL BATTERY
AT ALL DEALERS EVERYWHERE—TRY IT—BUY IT
HYTTE'S FACTORIES, 5062121E ST. INDIANAPOLIS, U.S.A.



The Wheat Yield Tells the Story
of Western Canada's Rapid Progress

The heavy crops in Western Canada have caused new records to be made in the handling of grains by railroads. For while the movement of these heavy shipments has been wonderfully rapid, the resources of the different roads, despite enlarged equipments and increased facilities, have been strained as never before, and previous records have thus been broken in all directions. The largest Canadian wheat shipments through New York ever known are reported for the period up to October 15th, upwards of four and a quarter million bushels being exported in less than six weeks, and this was but the overflow of shipments to Montreal, through which point shipments were much larger than to New York.

Yields as high as 60 bushels of wheat per acre are reported from all parts of the country; while yields of 45 bushels per acre are common. Thousands of American farmers have taken part in this wonderful production. Land prices are still low and free homestead lands are easily secured in good localities, convenient to churches, schools, markets, railways, etc. There is no war tax on land and no conscription. Write for illustrated pamphlet, reduced railroad rates and other information to

W. E. BLACK
Clifford Block Grand Forks, N. D.
Canadian Government Agent.

more skim milk should be fed than if whole milk were used, but the fat removed from the milk should be replaced by grain, as is pointed out in another paragraph.

Roughage and Pasturage

The calf should be supplied with plenty of roughage, preferably clover, alfalfa, or pea-vine hay; but if these are not available, mixed hay, bright corn fodder, or shucks may be used. This roughage should be kept before the calves in a rack or a box where it can be kept clean and fresh by renewing each day. The calf, when it is a week old, will begin to pick at this, and at one month of age will be taking a considerable amount. As in feeding grain, cleanliness is of great importance.

The calf will do well on pasture, and if this can be provided convenient to the building he will be able to get the greatest part of his roughage in this way.

DON'T LET DOWN THE BARS TO STOCK DISEASES

Contagious diseases that carry off thousands of hogs, sheep, horses and cattle, can be prevented. It is not a matter for one stockman or farmer. Every man who raises stock should not only use great care as to sanitary conditions, but a bitter war must be fought against stomach and intestinal worms.

It is admitted that lime should be liberally scattered in the pens and yards, as a disinfectant; that all rubbish be cleaned up regularly and burned—that stock should be kept **Free from Worms**. Comparatively few farmers do this, and unless there is more concerted action along this line there will always be contagious diseases, and serious loss.

Worms are more dangerous than many imagine. They cause 90% of livestock losses. They not only infest young stock, but if left undisturbed, burrow into the inner walls, forming ulcerous, worm-infested patches. They multiply rapidly, consume the vitality of the animal and in many cases cause death.

There are various methods employed to rid stock of worms, but the easiest, quickest and safest way—now used by successful stockmen, is feeding Sal-vet. Mr. Sidney R. Feil, President of the Feil Mfg. Co., Cleveland, Ohio, is so firmly convinced of the great value of Sal-vet as a worm destroyer and conditioner that he agrees to send enough to feed all your stock for 60 days—asks no money in advance—and if it fails to do what he claims, he cancels the charge. The Sal-vet advertisement on page 7 of this paper gives the full particulars. (Adv.)



Poultry Department



HISTORY OF THE MEDITERRANEANS

Michael K. Boyer

The Mediterranean class is composed of five breeds divided up into twelve varieties. The Leghorns are composed of eight varieties: Single-Comb Brown, Rose Comb Brown, Single-Comb Black, Rose-Comb Black, and Single-Comb White. There is only one variety of Spanish, Blue Andalusians and Anconas.

The Leghorns, as a breed, originated in Italy. The testimonial given the breed by the American Standard of Perfection is worth quoting: "It comprises a group characterized by rather small size, yellow legs, white earlobes and great activity and sprightliness. All varieties of Leghorns are hardy and prolific. The males are very alert and strikingly erect in carriage: the females are non-sitters, few of them showing a tendency to broodiness, being specially valuable, therefore, as egg producers."

Various opinions are advanced as to the origin of the Leghorn family, and it is only of a later period that it is accepted that the Leghorns originally came from Italy. The first importation on record was made from Europe to America about 1834. The shipment came over direct from the city of Leghorn, in Italy. As the fowls bore no name, they were called Leghorns simply on account of the fact that they came from the town of that name. Ever since the breed is known by that title all over the world. It is said that birds of the same type were bred in different parts of Europe that were known as "Italians."

In 1853, F. J. Kenny, of Massachusetts, purchased a trio of Single-Comb Brown Leghorns that came direct from Italy. A Mr. Simpson, of New York, is credited of having about the same time purchased some White Leghorns that came direct.

Doyle, an English writer, holds that the Leghorn originated in America but this is not credited, but Edward Brown of England says that to America first belongs the credit of discovering their value and developing their special qualities, which is undoubtedly true.

In 1869 England imported her first Leghorns from America. Since then that country has made numerous importations from Italy, and with the crosses made with our American birds, has produced a type which, according

to our American ideas, is not as attractive as our home specimens are.

It was about 1853 when the first Single-Comb White Leghorns were introduced into the United States. Until then this breed was not popular, nor did it really have a distinctive name.

I. K. Felch says the first importations of Brown Leghorns was made in this country in 1853. This importation was bred along the Mystic River, Connecticut, and was known as the Red Leghorns. They were short-legged, had red in earlobes, and were very small in size. Mr. Felch says the modern acquisition of white earlobes, long legs, and not more than five points in the Comb, the dark-brown color and greater weight, has been the result of the following crosses: Spanish sires bred upon black-red Game hens, and the progeny to Brown cocks, and this progeny inbred to Brown Leghorn cock and inbred as before; and Black Spanish hens bred to brown Leghorn cocks, and the progeny inbred. Thus, we have birds of type far different from the original ones, and the Brown Leghorns of 1885 are as much different in color and type from those of 1853 as can well be imagined, and Mr. Felch thinks they well deserve the appellation of an American breed.

The Buff Leghorn is an English production. In the "Poultry Book" (Weir) a story is told of how the Buffs originated. It appears that a yellow Leghorn, a color quite unknown in England, was exhibited at Copenhagen in 1885, and there seen by the late Alexander Comyns, and it was this color that finally laid the foundation. It took eight years of systematic breeding, and it was in 1896 that the breed was exhibited in England.

The Breed was admitted to the American Standard in 1898. August D. Arnold, of Pennsylvania, was the first to import their birds of this variety from England.

Reed Watson, of Connecticut, imported the first Black Leghorns into this country. It was about 1872. The original stock came from Genoa, Italy, and was of Italian origin.

The Silver Duckwing Leghorns are not extensively bred here. They were admitted to the Standard in 1898. They were originated by G. Payne, England, the Golden Duckwing Leghorn, but they have not as yet been

accepted by the American Poultry Association.

G. Payne also originated the Pile Leghorns. This breed resulted, as also did the Duckwing, from a cross of White and Brown Leghorns, made in 1881. It is claimed that no foreign blood other than the two breeds named, was used in building up the Pile. The American Standard does not recognize the breed.

What is known as the Dominique in this country, sails under the title of Cuckoo or Cuckoo-Colored Leghorns in England. They were originated on the European Continent. It is claimed they were bred in Denmark for a number of years before being introduced in England. They were first shown in Europe in 1885. It looks as if this variety may have originated in America, for in 1875 it was admitted to the Standard, but it was dropped in 1895. The variety is the smallest of the Leghorn breed.

The original breeds were single-combed, but in 1883 rose-comb varieties of both the white and the Brown Leghorns were admitted to the Standard. The rose-comb varieties originated nearly fifty years ago. It is claimed they spring from matings of White Leghorns with White Hamburgs, in order to produce a rose-comb. The rose-comb varieties are more generally bred in the cold countries of the west, and in Canada.

The Ancona is, as its name implies, a native of Ancona, and has been known in England for about half a century. Their exhibition dates from 1851. They did not make much headway until 1898, when they were revived by new importations and they came in for a boom.

The Minorca, strictly speaking, belongs to the Spanish family, and were formerly known as the Red Face Black Spanish, or the Portugal fowl.

It is believed by some that the White Minorca originally came from the Island of Minorca, situated in the Mediterranean Sea. Others are inclined to contend that they are a variety of the Spanish. They were first introduced into the United States by the late Francis A. Mortimer, of Pennsylvania, in 1885.

The Andalusian breed, are rather the forerunner of the breed, was imported into England from Andalusia, in the years 1846 and 1847. They were of all sorts and colors. Three years later another importation was made with about equal results. In 1853 John Taylor exhibited the result of his breed at the Baker Street show in London.

The Black Spanish were first known the early part of 1800, and as early as

1850 they were popular in Pennsylvania and neighboring states.

Martin Doyle some years back claimed the fowl called Spanish is not an absolute original of Spain, but was imported into that country from some portion of the East, thru the Mediterranean, or from the West Indies by Spanish merchants, and propagated and naturalized in Spain. Lewis Wright claims they came from the Spanish Peninsula.

The entire Mediterranean class are layers of white colored eggs. The Spanish and the Minorcas having the credit for producing the largest sized. The American Standard does not give weight qualifications for the Leghorn breed, but for Minorcas it allows 9 pounds for cock; 7½ pounds for cockerel; 7½ pounds for hen, and 6½ pounds for pullet.

MANY UNUSUAL SPECIAL FEATURES FOR NEXT YEAR

Pictorial Review has made a reputation for its worth-while Fact articles, and special attention will be paid to this part of the magazine in 1916. Mabel Potter Daggett, author of "The Third House," is already at work on a series of articles of particular interest to intellectual women, entitled, "Phases of Feminine Unrest."

The forthcoming series of articles on "A Nation-wide Clean-up Campaign," by Anna Steese Richardson, author of "Better Babies and Their Care" has already been announced in our November number.

Among other writers of special merit whose best work will appear in Pictorial Review in the months to come are Dr. Orison Swett Marden; Helen Louise Johnson, Chairman of the Home Economics Department of the General Federation of Women's Clubs; Dr. Frank Crane, and others.

And last, but by no means least, we must proclaim the good news for the children that Grace G. Drayton is now at work on a new series of Cut-out Pictures. Mrs. Drayton's pictures of "Kute Kiddies" have brought her both fame and fortune, and "Dolly Dingle of Dingle Dell" and her playmate, "Billy Bumps," will soon be with us again, to the delight of children of all ages.

You need the Pictorial Review. We commend it without hesitation. To show that we are willing to "meet you half way," we make the following limited offer:

Pictorial Review (1 year).....\$1.50
North Dakota Farmer (3 Years) 1.50
\$3.00

Both.....\$1.50

NORTH DAKOTA FARMER,
Lisbon, N. D.

BEITH'S WHITE WYANDOTTES

Winners at Crookston, St. Paul, Minneapolis and Fargo, N. D. Our birds are bred to lay as well as they are bred to win.

J. C. BEITH

Wheatland, North Dakota

BARRED ROCK COCKERELS. Must sell to make room for younger stock. Have Enoch Peterson strain, bred for egg production, best in the northwest. Cheap for immediate delivery. Mrs. R. C. Burnett, Fargo, N. Dak.

BOURBON RED TURKEYS. Unrelated Breeders. Buff Orpingtons, Good Prize Stock. G. H. Johnson, R. 2, Evansville, Minn.

S. C. W. LEGHORNS. The Famous Tom Barron's Strain. Cockerels, \$1.50 each; \$7.00 per five. Pullets, \$1.25 each; \$12.50 per dozen.

ROSE COMB REDS. Cocks and Cockerels, \$1.50 each. Hens, \$1.00 per dozen. Have a large flock to select from this fall and can fill orders promptly. Joseph Berg, Hendrum, Minn.

Silver-Laced Wyandottes, bred for business wide open laced, winter laying large birds. \$1.00 to \$3.00 each. Satisfaction guaranteed. Anthony Elm - - - Lansford, N. D.

Fifty varieties, chickens, ducks, geese, guineas, turkeys. Low prices. Catalogue free. Dell Walrath, Janesville, Minnesota.

FOR SALE. Barred Plymouth Rock Chickens, Mammoth Bronze Turkeys, Indian Runner Ducks. Eggs in season. Prices reasonable. Order early. J. Magnuson, Edinburg, N. D., R.

EGGS FOR HATCHING from choice Silver Laced Wyandottes. \$1.50 for 15 eggs. Mrs. Thomas Brady, Lansford, N. D.

55 BREEDS

Pure-bred Chickens, Ducks, Geese and Turkeys, Hardy, northern raised, vigorous and most beautiful. Fowls, eggs and incubators at low prices. America's Pioneer Poultry Farm; 21 years exp. Large fine Poultry Book and Catalog Free.

F. A. NEUBERT Box 689, : Mankato, Minn.

Breed White Wyandottes. Eggs for sale from vigorous trap-nested stock. My birds win in show room wherever exhibited. M. C. James, Valley City, N. D.

For Sale. Nice Buff Orpington Cockerels at \$1 each. Mrs. John Alexander, Edmunds, N. D.

White Holland Turkeys, Toulouse Geese and Barred Rock Cockerels. Gustav Larson : : Northwood, N. D.

S. & R. C. White Leghorns. Blue Ribbon and Silver Cup Winners. Cockerels, \$1.50; Eggs, \$1 per 15; \$4 per 100. H. H. Hirschy, Lisbon, N. D.

S. C. R. I. Reds. High scoring cockerels. Eggs for hatching in season. Henry Mertens, Cray, N. D.

White Holland Turkeys, R. C. R. I. Reds. Stock and Eggs in season. Maurice H. Bliss, Geneseo, N. D.

White and Columbia Wyandottes, Light Brahmas, and S. C. White Leghorns Over 30 years a breeder. Stock and eggs for sale. MICHAEL K. BOYER, Box 27, Hammon, New Jersey.

PURE BRED S. C. W. Leghorns. Eggs for Hatching, \$1.00 per 15; \$4.00 per 100; or \$7.00 per 200. T. I. Martinson, Christine, N. Dak.

B-E-A-L-S'

Dakota Strain. Bred to Lay and Win

BARRED PLYMOUTH ROCKS Won at Fargo Inter-State Fair in hot competition 1st cock; 1st, 2nd, 3rd cockerel; 1st, 2nd, 3rd pullet. At Valley City, 1st, 2nd, 3rd hen. Order choice breeders for delivery later at \$2 per head while they last.

PERCY BEALS : : FARGO, N. D.

Quality White Rocks

We have as good as grow. You start right with our stock or eggs. O. A. Barton, Valley City, N. D.

School and Home

SIXTH ANNUAL BOYS' AND GIRLS' INSTITUTE

The boys and girls assembled at the Agricultural College December 7th to hold the sixth annual institute. Miss Sullivan opened the meeting by calling on Director Cooper of the Experiment Station, who complimented the boys and girls on the good work they are doing and told them that a good deal of progress that had been made in corn, alfalfa, potatoes and in pork production was due to their efforts. Their parents had become interested in these things thru the boys and girls working at them for the contest.

There were many county superintendents present who had attended every institute. Miss Sullivan who is now the leader, was county superintendent in Cavalier County when the institutes were formed and she brought delegations each time.

W. G. Crocker, better known as Uncle Will, drilled the institute delegation in the yell which runs as follows:

D-I-Di-versify

Corn, Alfalfa, Pigs and Rye,

Rap-a-tap! tap-a-tap! who are we?

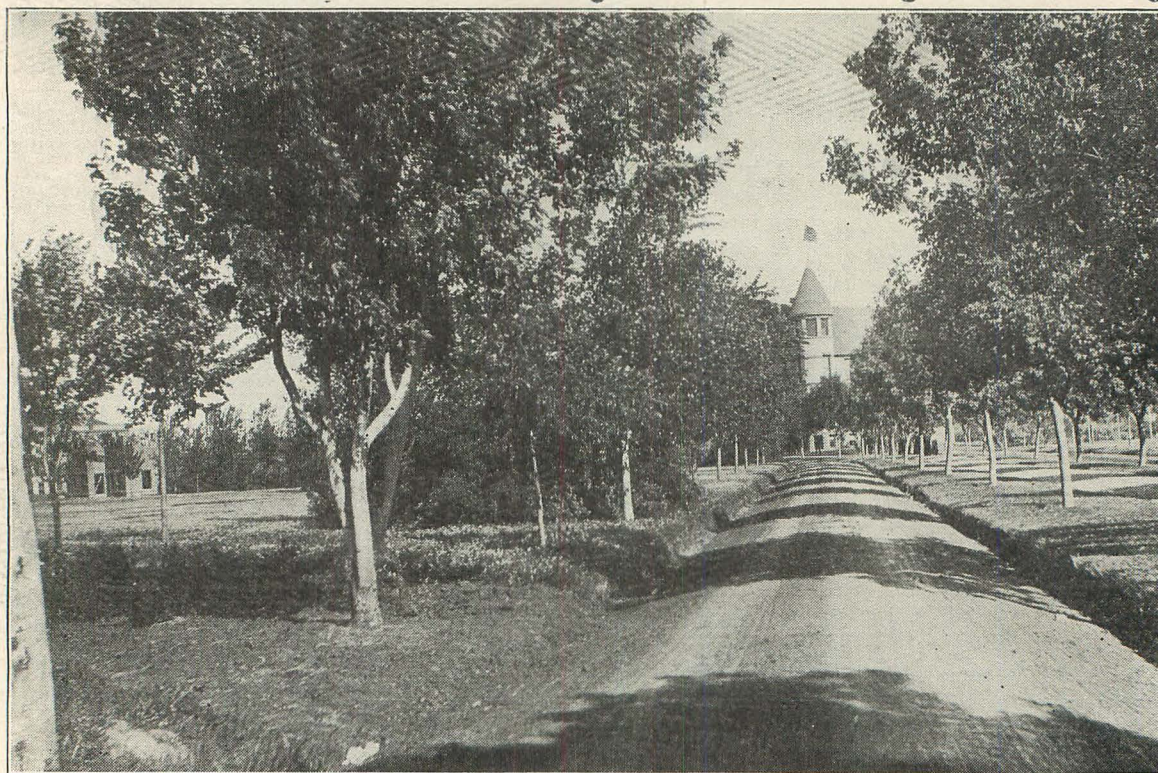
Winners at the Grand A. C.

George E. Farrell of the U. S. Department of Agriculture was present

in order to get in a special lesson in stock judging. Thursday afternoon the boys and girls were the guests of the Fargo Commercial Club. The first thing on the program was a luncheon at the Club Rooms and then they visited at various places, winding up at the Y. M. C. A., where the boys were given the privilege of the swimming pool and went in for a good swim.

The last day was largely given up to contests. In the dairying contest the boys' problem was to place three dairy cows in the order of their merit and to score them on a score card. In the beef contest three beef animals were taken up in the same way. In the corn contest each boy had 10 ears of corn to place. There were also contests for the girls. The awards in these various contests are as follows:

In bread-making the girls of La-Moure County stood first, Cass Coun-



The Agricultural College where the Boys and Girls Institute was held

President Worst was called on and welcomed the boys and girls to the Agricultural College and extended to them all privileges on the campus. He stated that he was glad to meet these boys and girls who had been winners in their respective counties and hoped that they would continue in doing the most excellent work in their respective communities.

Mr. Randlett who started the contests and who has conducted till this year was missed, his work being at the present time in South Dakota.

at the institute and gave demonstrations in canning fruits and vegetables and stringing corn and also discussed gardening and the various contest activities.

The lessons centered a good deal about livestock for the boys and such home making subjects as bread-making, textiles, sewing and emergency aids for the girls.

There was also time for play and entertainments. As an indication of the interest the boys took in the work they one day gave up the play hour

ty second and Stutsman County third. In darning the Dickey County girls won first place, Wells County second, and Kidder third. In bread-molding the Dickey County girls also won first place for their county, Pembina second and Stutsman third. In the judging of beef cattle the boys of Pembina County stood highest, Kidder second and Barnes third. In judging dairy cattle Bottineau County boys won first, Dickey county second and Barnes County third. In the corn judging the Bottineau County

boys also won first for their county, Dickey second and Walsh third. In the athletic contest the Williams County delegation won first, Cass County second and Benson and Renville Counties tied for the third place. The score on the note books was as follows: Barnes County first, Dickey county second and Benson County third.

In the dairy cattle judging contest Marshall Ward of Dickey County stood highest, Cowles Forest of Dickey

\$1.85 interest, which shows that in these boys' and girls' organizations good business principles are used.

It was a busy week for the boys and girls and they are going back to their respective communities with a new vision of the big work to be accomplished in farming and home making.

LIST OF MEMBERS

Barnes County. Minnie J. Nielson, Co. Supt.; Margaret Lee, Marie

Billings County. E. Earl McCullough, Co. Supt.; Ambrose Olson, Mable Borcourt.

Bottineau County. H. E. Layne, Co. Supt.; Willie Brander, Gertrude Sherwood, Catherine Payne.

Cass County. J. W. Riley, Co. Supt.; Glenn Brownlee, June Barckley, Adolph Edstrom, Agnes Marchand, Mebva Michelson, Johanna Vinge, James Watt, Mr. Parsons, visitor, Mr. Ross, visitor, Albert Viestinz.

Dickey County. Mary Fleming-



Boys Judging Livestock at the Boys' and Girls' Institute

County second, William Eggers of Barnes County third, Horace Judd of Towner County fourth and Charles Dewey of Sargent County fifth. In the beef cattle judging contest Bennie Johnson of Dickey County scored the highest, Horace Judd of Towner County second, Francis Kelsh of Dickey County third, Willard Gustafson of Pembina fourth, Ray Wilcox of Renville County fifth. In the corn judging contest Marshall Ward of Dickey County won first place, Francis Kelsh of Dickey County second, Glen Brownlee of Cass County third, Bennie Johnson of Dickey County fourth and Paul Torgerson of Barnes County fifth.

The exhibits in the state sewing contest were also judged at this time. There were 85 exhibits and the awards were as follows:

Junior Girls: First, Ella Dahl of Walsh County, second Mildred Pierce of Dickey County and third Ethel Forbes of Towner County.

Senior Girls: Lila Thompson, Walsh County first, Andrea Raumin of Walsh County second and third went to Kidder County."

The last thing was the election of officers which resulted as follows: President, Francis Kelsh, Dickey Co. V. Pres., Vernon Weliber, Benson Co. Secretary, Ida Edinger, Wells Co. Treas., Horace Judd, Towner Co.

The treasurer's report was to the effect that there was \$30.20 in the treasury and that this had earned

Zaun, Myrtle Nelson, Gertrude Stephan, William Eggers, Kenneth McFadden, Paul Torgerson.

Benson County. Peter Anderson, Co. Supt.; Esther Witmer, Violet Hill, Minnie Houson, Mabel Gilbertson, Jennie Nelson, Mrs. Andrew Nelson, Vernon Welliner, Robert White.

ton-Strand, Co. Supt.; Annice McDonald, Mildred Pierce, Helen Noess, Esther Noess, Caryl Fahl, Opal Couch, Dagmar Hoybak, Ward Marshall, Francis Kelsh, Bennie Johnson, Leonard Cowles, Forest Cowles, Milton Pierce, Chester Johnson, Mr. Pierce, visitor.

Grand Forks County. Elizabeth

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Give unusual wear on account of the way they are made, oak tanned soles, full vamps—strong, steel shank—solid counters.

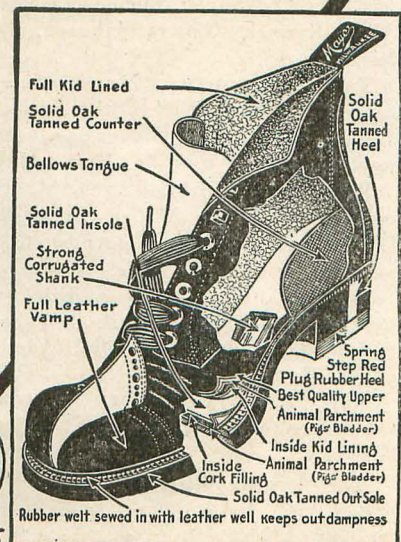
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Milwaukee Wisconsin



HONORBILT



Burr D. Co. Supt.; Clarence Knudson Wilbur Anstett, Jennie Kittleson, Lucie Lenz, Emma Strutz.

Hettinger County. Margaret Kennedy, Co. Supt.; Robert Lundeen, Lynn Moody, Myrtle Walker, Lydia Barth.

Kidder County. Lydia Haiman, Co. Supt.; Floyd Billington, Marlin P. Hutchison, Pauline Gilk, Pearl Peyer, Ruth Matthews, Irene Geringer

La Moure County. Cora E. Sab-in, Co. Supt.; Maggie Morgan, Ida Morgan, Ruth Rosland, Jennie Green, Albert Neilson, Alfred Neilson, Mrs. Green, Visitor.

Ramsey County. Helen E. Haig, D. Co. Supt.; Everett Horne, Marjorie Horne.

Renville County. Alma J. Rockne, D. Co. Supt.; Jay Wilcox, Sarah Atwood, Harry Lindelouf.

Pembina County. Charlotte A. Jones, Co. Supt.; Ellen Hardy, Elin Scheving, Sigrun Johansson, Willard Gustafson.

Sargent County. Henry Ulve, Co. Supt.; Kenneth Kimebaugh, Foster Bucher, Oscar Hoflen, Gottfred Pearson, Wilmor Lunneborg, Palmer Engle, Harry Pederson, Charlie Dewey.

Ransom County. C. E. Cavett, Co. Supt.; Albert Steiger, Arthur Granlund, Walter Granlund, Peter Berg, Floyd Watson, Margaret Kenyon, Letty Henrickson, Eva Billing, Margaret Billing, visitor, P. B. Henrickson, visitor, W. G. Crocker, visitor.

Richland County. Mollie G. Myhre, D. Co. Supt.; Nora Ecklie, Florence Connolly, Gilbert Westein, Nathaniel McLeod, Frank Stone.

Rolette County. Alfreda M. Jolliffe, D. Co. Supt.; Alice Thornbye, Emma Lizzotte.

Pierce County. Sara Guss, Co. Supt.; Effie Stearns, Nellie Garry, Grace Larson, Jens Onedall.

Stutsman County. Helen M. Barrett, D. Co. Supt.; Lucille Eastman, Aline Runner, Genora Johnson, Leo Verlinden.

Towner County. Mamie Sorenson, Co. Supt.; Ethel Forbes, Emma Juntunen, Lenna Gibbens, Joseph Langer, Clifford Johnson, Horace Judd

Williams County. Anna M. Peterson, Co. Supt.; Mabel Poe, Edith Cote, Bert Lindholm, Bernice Clay, Sibyl Wagner, Edith Cole.

Walsh County. Edward Erickson, Co. Supt.; Eugene Daily, Wallace Ferguson, Andrea Raumin, Adeline Fedje, Bridget O'Keefe.

Wells County. Sennev Nertrout, County Supt., Ida Edinger, Myrtle Helgerud.

Resolutions beg leave to submit the following.

Resolved that we express our kind-

est feelings of gratitude to President Worst, Mr. Cooper, the Director of the Experiment Station, Miss Sullivan,



The Boys and Girls of the 1915 Institute Held at the A. C., Dec. 7th to 10th

J. M. Hanson-Bennett Magazine Bargains

NORTH DAKOTA FARMER	\$0.50	ALL FIVE \$1.25 ONE FULL YEAR
McCALL'S (and Pattern 2c)	.65	
TODAY'S (and one May Manton Pattern)	.50	
HOUSEWIFE	.50	
WOMAN'S WORLD	.35	

All Subscriptions are for ONE FULL YEAR, and may be sent to one or to separate addresses: Subscriptions may be either New or Renewals.

North Dakota Farmer	\$0.50	All Five \$1.30	North Dakota Farmer	\$0.50	All Five \$1.25
American Poultry Journal	1.00		McCall's (and Pattern 2c)	.65	
Today's (and Pattern)	.50		Housewife	.50	
Woman's World	.35		Poultry Success	.50	
Household Guest	.25		Woman's World	.35	
North Dakota Farmer	\$0.50	All Four \$1.25	The Youth's Companion—including the rest of this year, 1915, free, the 52 issues of 1916 and the 1916 Calendar, all for \$2.00		
N. Y. Tri-Weekly World	1.00				
Farm and Home	.50				
American Poultry World	.50				
North Dakota Farmer	\$0.50	All Four \$1.00	North Dakota Farmer	\$0.50	All Three \$2.50
Today's (and Pattern)	.50		Woman's World	.35	
Poultry Success	.50		Youth's Companion (Including above \$2.00 offer)		
Woman's World	.35				
North Dakota Farmer	\$0.50	Both 75c	North Dakota Farmer	\$0.50	All Three 80c
Fruit Grower and Farmer	.75		Woman's World	.35	
			American Poultry World	.50	
North Dakota Farmer	\$0.50	All Three \$2.35	North Dakota Farmer	\$0.50	All Four \$1.00
Pictorial Review	1.50		McCall's (and Pattern 2c)	.65	
Mother's Magazine	1.50		Poultry Success	.50	
			Woman's World	.35	

Good Housekeeping } Both
Cosmopolitan } **\$3.00**

Good Housekeeping }
(2 years) } **\$2.00**

Mother's Magazine	- - - -	\$1.50	All Four 1 Year \$1.75 To One Address
Its extensive articles, special features and practical Departments constitute an invaluable reference library.			
McCall's Magazine (and Dress Pattern 2c)	.50		
The 100 page monthly that sets the styles for dressmaking, newest fancywork, latest fashions and household departments.			
Ladies' World	- - - -	1.00	
is the McClure Magazine for Women and fills every need for her.			
North Dakota Farmer	- - - -	.50	

Ask for Our Complete 44-Page Catalog of All Club Offers for 1916. IT'S FREE.

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Address all Orders to **J. M. Hanson-Bennett Magazine Agency**
854 Brooks Building, CHICAGO, ILL.

Resolutions

In behalf of the Boys' and Girls' Institute for 1915, the Committee on

the State Leader, also Misses Newton and McDonald, Mr. Farrell, Mr. Kirk and all others who have aided in making this institute so delightful and profitable to the boys and girls of the state.

We also wish to express our heartiest thanks to the business men of Fargo and to its generous Commercial Club. We are especially indebted to the Secretary of the Commercial Club, Mr. Hardy, for his courtesy in showing us the various places of interest in the "biggest little city in the United States."

We wish further to express our thanks to those who have made the institute possible and also to those who are paying the expenses of our trip.

The members of the Boys' and Girls' Institute wish to thank the several county superintendents for accompanying them and also for their watchful care.

Be it resolved that we adopt the 4. H. achievement emblem instead of cash prizes.

Further, be it resolved that the secretary of this association be instructed to send a message of greeting to our former director, Professor Gordon Randlett.

And lastly, be it resolved that when we return to our homes we endeavor to put into practice, as far as possible, the things we have learned at the Agricultural College; and that we endeavor to inspire others with the same spirit of push and energy which has been manifested at this institute.

Sigrien Johannson, Pembina Co.
Marguerite Kenyon, Ft. Ransom
Henry Ulve, Co. Supt. Sargent Co.
Willie Brander, Bottineau Co.
Vernon Welliver, Benson Co.
Bridget O'Keefe, Walsh Co.

ADVERTISING HELPS IN BUSINESS OF FARMING

To market high class products at profitable prices usually requires the use of some form of advertising. Letter-heads, post cards, circulars, booklets, catalogs, and advertisements in the newspapers by individuals as well as by community or county breeders' associations, help to boost the farm business.

"All of these forms of advertising aid in improving and increasing the farmers' sales," says D. H. Otis of the College of Agriculture who has had charge of Wisconsin's farm management contest.

"It is a good business policy" he says, "for the farmer to use one, or several forms of advertising if he finds that it helps him. The win-

ners of the farm management contests for several years have been farmers who used advertising in some form or other.

"In advertising, the farmer should advertise only the truth. When a farmer advertises a farm sale, he should not use the sale as a dumping ground for low grade stock. Untruthful advertising always has a 'come back.'

"The farmer should have a neat letter-head. The name of his farm, his own name, and if possible, a good illustration should be used. When a farmer raises quality stock, it is a good plan to use a cut of his record cow, or prize hen, together with its record on the letter-head. When the whole herd of cows has a high record, it may be well to put a picture of the herd, together with the record on the letter-head.

"Many farmers are using a type-writer effectively. The type-written letter is more easily read than the average hand-writing, and makes a stronger appeal.

"Every piece of advertising should be backed up by keeping the stock up to the standard set."

A LIVE CLUB

Editor North Dakota Farmer:

The Calvin Farmers' Club have had several meetings since the busy season was over. At the first meeting the "beefring" and "twine" business was attended to; seventeen beeves

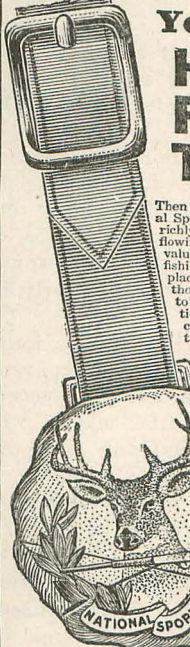
12½¢

ECONOMY

FENCE

Before you buy any more fence, write for facts about our 26-inch ECONOMY HOG FENCE at 12½¢. per rod. Many other styles and prices.

Keystone Steel & Wire Co.,
6893 Industrial St. PEORIA, ILL.



You like to go Hunting Fishing Trapping

Then surely you will enjoy the National Sportsman Magazine with its 110 richly illustrated pages, full to overflowing with interesting stories and valuable information about guns, fishing tackle, camp-outs—the best places to go for fish and game, and a thousand and one valuable "How to" hints for Sportsmen. The National Sportsman is just like a big camp-fire in the woods where thousands of good fellows gather once a month and spin stirring yarns about their experiences with rod, dog, rifle and gun. All this for 15¢ a copy.

Special Offer

We will send you **FREE of Charge** one of our handsome Ormulo Gold watch fobs as here shown with Seal grain leather strap and gold plated buckle on receipt of \$1.00 for a year's subscription to the National Sportsman. Here's what you get for your money:

12 copies National Sportsman at 15¢ ea.	Val. \$1.80
Watch Fob,	.50
Total Value, \$2.30	

All to you for \$1.00. Your money back if not satisfied.

NATIONAL SPORTSMAN, 230 Columbus Ave., BOSTON, MASS.

LET ME QUOTE A PRICE ON YOUR MAGAZINE LIST.

W. G. Crocker,
LISBON, NORTH DAKOTA

What Do You Think of This Land?

The Mohall Security Bank has just sent me returns of this year's crop of N. E. ¼ 20-160-84 being Clay Township, Renville Co., North Dakota, rented to Edward Fitzgerald, on my one-third share, he furnishing seed, viz:

Wheat.....	1423 bu.
Oats.....	623 bu.
Barley.....	401 bu.
Total.....	2447 bu.

Besides the quarter the above grain was raised on, I offer for sale S. E. ¼ of Sec. 1 in same township. Also E. ½ Sec. 27 162-83, being in Hoffman Township, Bottineau Co., and about twelve miles from the farm located in Sec. 1, Clay Township, all tributary to Mohall, the county seat of Renville County.

From the top of one of the elevators at Truro, N. D., being half mile from the quarter I offer for sale in Sec. 1, Clay Township, you can see and count 27 substantially erected grain elevators. I mention this to show that this is a very productive section of country.

The above mentioned descriptions contains one section of land which I offer for sale at \$20,000, on terms. Any parties interested may address

M. O. HALL, 3320-30th St., San Diego, California.

were killed and everything satisfactory. 20,000 pounds of twine was bought co-operatively at a saving of \$400. The cost of handling this twine was one mill per pound, while the best bid from dealers was twenty-one mills.

At our last meeting arrangements were made for an institute here Dec. 27, 28, 29. Soft and hard coal and flour were bought lately at a saving of several hundred dollars to the members.

The N. W. Federation, composed of five clubs will hold its first meeting on Saturday next, and the county organization (United Farmers Clubs of Cavalier County) will hold its annual business meeting at Wales early in January.

There is some agitation here for a state-wide federation and a convention for that purpose and it is generally concluded that the matter will be considered at the Grain Growers' Convention at Fargo this winter.

It might not be well to start too many things until there is strength enough to push it along but it would do no harm to discuss the matter whenever opportunity presents itself. The main thing is to see that real or actual farmers are the promoters and not the so-called "farmers' friends."

Cavalier County would like to hear from other counties and clubs on this subject.

H. C. OTTESON, Sec.

OLEOMARGARINE LEGISLATION

It may not be amiss for me to call the attention of your readers to an organization that has for its object a better agriculture.

The National Dairy Union is an organization incorporated under the laws of the State of Illinois and was organized to protect the dairy industry from the fraudulent sale of any substitute for the product of the dairy; to protect the interests of the consumers of dairy products; to disseminate dairy knowledge and in

every way further the interests of dairymen and others engaged in the handling of dairy products.

The great contention between the manufacturers of oleomargarine and the dairy people is the coloring of oleomargarine. The natural color of oleomargarine is white, and the natural color of butter is yellow, and when oleo is colored in imitation of yellow butter it brings from 5 to 20 cents a pound more than when it is uncolored. The coloring yellow of any imitation, or substitute, for butter, is done for the purpose of using this trade-mark, and to make deception possible. The dairy cow cannot stand against this unfair competition, for

where substitution is possible, competition is impossible.

It has been proven conclusively that where oleomargarine is sold uncolored, it is of a better grade and sells for less money than when colored. For the protection of the consumer, and the producer of honest dairy products, the National Dairy Union contends that each product should

CANCER

and Tumors successfully treated without knife or pain. All work guaranteed.
Come, or write for Free Book
Dr. WILLIAMS SANATORIUM
2500 University Av., Minneapolis, Minn.

SOME SCHOOL AIDS

Price Includes Postage. Order By Number

5. Aluminum Cup (3-piece).....\$.06	12. Magnifier, Pocket (1½ in. diam.) .30
7. Aluminum Cup (Extra)..... .25	41. Marker (To make reading charts) 1.50
74. Alphabet Cards, 8 fonts..... .15	69. Modeling Clay, 5 lbs..... .45
99. Art Gum (Eraser) Large Size... .06	52. Packing Needles, each..... .04
73. Art Studies, 32, Brown's..... .30	27. Nose Guard..... .55
24. Basketball, Victor, (Good)..... 2.25	29. Number Cards..... .12
25. Basketball, " (Better)..... 3.75	2a. Number Cards, Davies (New) .25
26. Basketball, " (Best)..... 6.25	3. Paints, Imported, Moist (18 col.) .12
72. Birds of N. D., natural colors, 5 sets of 15 birds each, per set... .30	2. Paints, Prang's Water (3 Col.) .. .25
33. Cards (100) and Figures (400)25	34. Passe-Partout Binding..... .10
28. Chain Links..... .20	3a. " (Gold or Silver)..... .18
60. Chenille, plain, per lb..... .65	80. Paste, Dry (½ lb.)..... .12
4. Compass, Pencil..... .10	43. Paste (Tube)..... .08
37. Drawing Pa. white, ream, 9×12 .70	66. Pencil Clip..... .03
88. " " " " " " " " " " " " .40	71. Photogravures, 16 in. See list. .. .15
89. " " " " " " " " " " " " .55	97. " Pres. Wilson, 12 x 16 in. .15
90. " " " " " " " " " " " " .30	9a. Plasticine, per pound..... .45
62. Flag, Sewed Bunting (3x6)..... 2.70	45. Pocket Mirror..... .07
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64. Flag, Sewed Bunting (7x14)..... 8.25	98. Raphia, (Natural, Color) 5 lb.... 1.25
92. Exam. Paper prin. head, ream, .. .80	49. Raphia (colored) 1 lb., one color .55
93. " " " " " " " " " " " " .45	84. Raphia (colored) ½ lb., one color .35
49. " " " " " " " " " " " " .25	85. Raphia (colored) ¼ lb., one color .20
95. " " " " " " " " " " " " .25	50. Raphia Frames, per doz. pair.... .20
96. " " " " " " " " " " " " .25	51. Raphia Needles, 25 in package... .12
30. Folding Squares..... .20	86. Reed, Flat, ½ in., per lb..... .60
21. Football, Victor, (Reg. Size).... 1.30	53. Reed, Round, Med'm, No. 2, lb... 1.20
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23. Football, " (Best)..... 4.50	70. Report Cards, doz., with eps.... .12
9d. Football, (Soccer)..... 3.00	8. Scissors 4½ in. doz. .70..... .07
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82. Games, Playground..... .10	65. Slated Cloth, per sq. yd..... .65
44. Glue (Tube)..... .10	6a. Stars, Gilt, box..... .12
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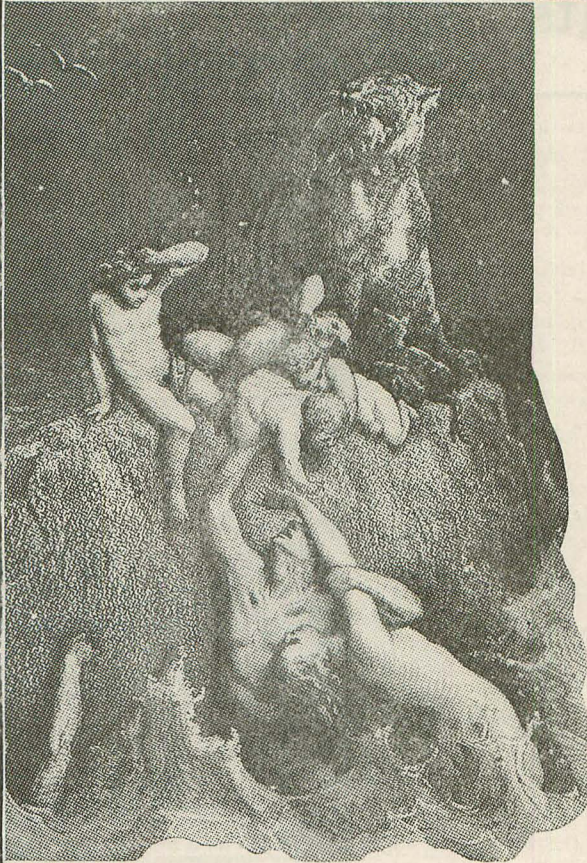
stand on its own bottom; that oleo shall not be made in imitation of butter of any shade of yellow.

When the present law was put into operation an interpretation was placed upon it that all oleomargarine should pay one-fourth of a cent a pound tax, unless the government showed it was subject to the ten cents per pound

tax. Less fraud would have been committed had the government placed a reverse interpretation upon it, that all oleomargarine pay ten cents a pound tax, unless it was shown by the manufacturers that it was only liable to the one-fourth of a cent per pound tax, and this interpretation we really believe would have been in line

with the interpretations of similar laws. This wrong-end-foremost-way of enforcing the law made it more easy to defraud the government out of some 27 millions of dollars of taxes.

The Secretary of the Treasury in his report to Congress a few days ago recommended a change in the present oleomargarine law.



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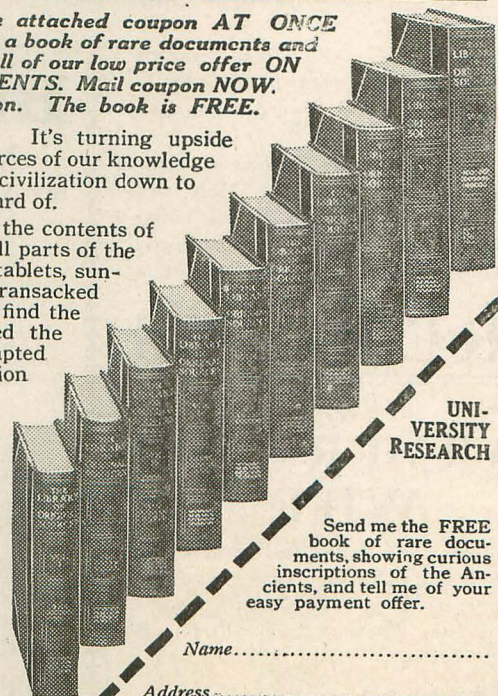
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The National Dairy Union champions legislation that will prevent the frauds which have always prevailed in the sale of yellow oleo, by fixing a limit of color for it, which conforms to that which is now known in the trade as white oleo, and by changing the present tax to one cent a pound.

Your help is necessary to make these efforts a success. Can we count on you?

Respectfully yours,

WM. T. CREASY,

Catawissa, Pa.,

Sec., N. D. U.

Household Hints

By Aunt Maggie

WHITE FONDANT

Two cupfuls granulated sugar; one-eighth teaspoonful cream of tartar; two-thirds cupful water.

Put ingredients in a saucepan and mix thoroly. Heat to the boiling point and boil without stirring until the mixture will spin a fine hair from the tines of a fork. While the mixture is cooking, crystals will adhere to the sides of the pan. These should be washed off. When cooked sufficiently remove from the fire and let stand until cold. Then beat until creamy and it begins to harden. Turn from the saucepan onto a board or marble slab, and knead with the hands until creamy and smooth. Put in a bowl and cover with a place or saucer to keep out the air. Let stand in cool place for twenty-four hours, when it may be removed and kneaded with the hands. Divide in portions, flavor to taste, and mold into desired shapes. If you have difficulty with its sticking to the board, sprinkle with confectioner's sugar.

Maple fondant is made the same way, using half maple and half white granulated sugar.

Nuts and pieces of candied fruit or crystallized ginger may be dipped in melted fondant and placed on waxed paper to harden.

For chocolate creams make fondant into the shape of cones. Melt two ounces of chocolate in a double boiler and add a very small amount of cocoa butter. Take the creams, one at a

time, on a fork or toothpick, and dip them in the melted chocolate which should not be too hot. Cover on all sides and set on waxed paper to harden.

Cream Wafers: Melt fondant in a double boiler. Add a few drops of oil of wintergreen or oil of peppermint, and coloring matter if desired. Drop from the tip of a spoon onto waxed paper. Clove, cinnamon, orange, or lemon may be used in place of the flavorings mentioned.

Stuffed Dates: Remove stone and fill with fondant, letting it project slightly. Insert a pecan meat or half a walnut and roll in granulated sugar.

FOR CHAPPED HANDS

Every night use a mixture of equal parts rosewater and glycerin, with a few drops of tincture of benzoin added to it, and the hands will not chap in the coldest weather.

In order to avoid the annoyance of picking up a pin to join the work,

take a small-sized crochet-hook from a set (about two inches long), put a head of sealing-wax on the end which was intended to fit into the handle, inserting a piece of corn while forming the head to make a loop a few inches long, which you may hang over a button on the waist, and the bother of pin-dropping is done. I always keep this little implement with my tatting-shuttle, and find it very much better than a pin.

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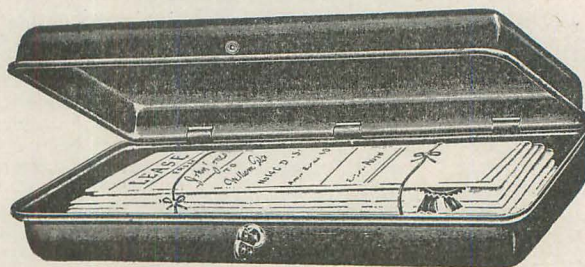
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Seasonable Receipts

Edited by Mrs. Sadie Baird.

POT ROAST

One and one-half pounds of beef (for stew, or any lean cut). Wipe with a clean cloth wrung out of cold water, and cut into pieces one inch square. Put into an earthen dish, one onion peeled and sliced, eight carrots sliced, two or three sprigs of parsley, one and one-half teaspoonfuls of salt. Now add the meat, and two cups each of hot water and canned tomatoes. Cover and bake in a slow oven for three and one-half hours. About half an hour before serving time thicken with three level tablespoonfuls of butter creamed with three tablespoonfuls of flour. Remove the onions and carrots and add one cup of canned peas which have been rinsed in cold water.

SOUR MILK BISCUIT

Two cups flour with one-half teaspoonful soda and one teaspoonful baking powder. Rub into this one heaping tablespoonful lard and moisten with sour milk. Make dough a little stiffer than baking powder biscuit and knead well.

HONEY CANDIES

Butterscotch

One cup of butter, two cups of sugar, two cups of extracted honey (or sorghum), one heaping teaspoon cinnamon. Boil ten minutes, pour into a buttered pan and when cold cut into squares.

Cracker Jack

One cup brown sugar, one cup extracted honey (or sorghum). Boil until it hardens when dropped into cold water. Remove from stove and stir in one-half teaspoon soda. Stir in all the popcorn it will take, spread on greased tins and mark in squares.—Missouri College of Agriculture.

HONEY

Pure Extracted honey—the most healthful and wholesome of all sweets. Our honey is put up in a neat clean manner, and is strictly first class in every way. Price: 2-60 lb. cans in case, \$12.60; 1-60 lb. can \$6.60; 6-10 lb. pails in case, \$7.20; 6-5 lb. pails in case \$3.75; single 10 lb. pails \$1.25; single 5 lb. pails \$.65.

EGGERS APIARIES CO.,
Eau Claire, R. 1 ; Wisconsin

COCOANUT COOKIES

One-half cupful of shortening; one-fourth cupful of milk; one-half cupful of shredded cocoanut; one cupful of sugar, one teaspoonful baking powder; two cupfuls of flour.

Cream the butter and sugar, add milk and egg beaten light, then the cocoanut. Add the flour and baking powder, sifted together. Roll thin and bake in a quick oven.

CORN FRITTERS

It is wise to substitute cracker crumbs for flour when making corn fritters. There is then no danger of the fritters having an uncooked taste as sometimes occurs when flour is used.

MINCED PIE

Two bowls of chopped apples, one bowl of chopped and cooked beef, one-fourth pound of chopped suet. Grated rind and juice of one lemon, two teacups of molasses, one large teaspoonful each of cinnamon, cloves and nutmeg. One pound of raisins, one-half pound of currants, one-fourth pound of citron cut fine, and one quart of sweet cider or fruit juice. Salt and sugar to taste. Cook, and fill crusts.

FISH RECEIPTS

During the summer a large number of farmers are deprived of the pleasure of having fresh fish almost entirely on account of the distance from stream or market. During the winter, however, frozen fresh fish may be had at very reasonable prices and should be used to a greater extent than they are as they are nourishing and easily digested. Thru the kindness of the Scandia Fish Co. we are giving a few receipts for using the frozen fish, taken from their copyrighted Fish Cooking Book.

Directions for Thawing Out Frozen Fish

To thaw out fish of any kind place them in a pan of clean clear cold water, the colder the better. Leave them in the water not over ten to fifteen minutes. Never allow frozen fish to thaw out in a warm room.

To Remove Fish-bone from Throat

The records are scant as to any being hurt or harmed by a fish-bone in the throat, but if it ever happens,

suck a lemon or drink lemon juice. The lemon acid soon dissolves the bone, but don't be afraid to eat fish.

Baked Herring

Place herring in a baking-dish, sprinkle with salt, pepper and chopped parsley. Cover with bread crumbs and bits of butter and pour over it one cupful of cream. Bake twenty minutes or until well browned.

Baked Trout or Pike

Trout is delicious served in the way mentioned below. Take two large fresh trout and place in a shallow baking dish. Sprinkle with salt, pepper and a little flour. Add a sprig or two of parsley, a small onion and a carrot sliced or finely minced, put in a bay leaf, three lumps of sugar, a tablespoon of butter, and an egg, one cupful of white vinegar. Bake the fish 45 minutes.

In Frying Fish

Remember if the pieces are put in the hot fat with the skin side uppermost and allowed to brown well before turning, there will be no possibility of the fish breaking up. Always fry your fish this way.

Herring and Bacon

Herring and bacon form a delicious combination. To prepare them boil the herring 15 minutes in salted water, drain them and keep them warm over steam. Fry the bacon crisp and brown and in the bacon fat brown the herring. Serve them with the bacon and a garnish of parsley or crisp lettuce hearts.



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